

**IOWA'S NONPOINT SOURCE MANAGEMENT
PROGRAM**

2012 ANNUAL PROGRAM REPORT

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Introduction

Nonpoint source (NPS) pollution occurs when rainfall, snowmelt or irrigation water runs over land or through the ground, picking up pollutants and depositing them into lakes, rivers and groundwater. Nonpoint pollutants that threaten or impair designated uses in waterbodies originate from both agricultural and urban sources. Such pollutants include: sediment; excess nutrients (nitrogen and phosphorus) from sediment, fertilizers, animal manure, and other sources; herbicides and pesticides; bacteria from livestock/pet wastes and faulty septic systems; and oil, grease, nutrients, bacteria, and toxic chemicals from urban and industrial sites.

Water quality is a direct reflection of watersheds and the land uses. Due to its rich natural resources for production agriculture, Iowa has become one of the most intensively cropped states in the country. While agriculture is not the only source of nonpoint pollution, it is definitely the primary source and the source providing the biggest challenge to address due to the sheer magnitude of the industry.

Addressing agricultural related nonpoint pollution represents not only the physical difficulty of trying to incorporate best management practices over so many acres, but also the challenge of trying to influence landowner attitudes. The agri-industrial complex of today is built upon generations of farmers who have been encouraged to maximize efficiencies mainly in terms of agricultural output.

In addition to the agricultural-related activities, urban runoff and stormwater discharges, atmospheric deposition, onsite residential wastewater disposal and waste disposal practices are causing negative impacts to the water resources of the state. These issues are being dealt with across the state in a variety of ways, through enhanced regulation, statewide information/education programs, and often as a component of a water quality project.

To address nonpoint source pollution, a comprehensive management strategy was developed by the state. Iowa's Nonpoint Source Management Program (NPSMP) dated September 2000, developed in cooperation with a number of water quality program partners, identifies Iowa's water resources, the nonpoint source impacts to our resources, and the variety of programs and partners which address nonpoint source issues. In addition, the NPSMP identifies the processes by which resources will be prioritized to ensure the needs of the state are met to the extent possible with the resources available.

The following annual report identifies the progress made during FFY2012 by the state in reaching the priorities and goals set forth by the 2000 NPSMP.

Iowa's Nonpoint Source Management Program Vision

Iowa's vision as stated in the Nonpoint Source Management Program (NPSMP) dated September 2000 is:

To preserve and protect the quality of water resources of the state from nonpoint source impairments.

To accomplish this vision, the state will support activities which will:

- increase the public's understanding of Iowa's water quality problems and treatment needs;
- encourage greater public involvement and participation in water quality programs;
- evaluate the status of the state's waters to ensure designated use criteria is being met;
- develop and implement coordinated restoration and water quality improvement plans that help preserve, protect and restore designated uses to surface waters and ground waters that have been impacted by nonpoint source pollution;
- provide technical assistance in the development of surface water and groundwater Best Management Practices (BMPs);
- promote the adoption of practices that reduce the impact agriculture has on the state's natural resources;
- reduce the impact of nonpoint source pollutants from urban lands;
- support surface water and groundwater monitoring efforts;
- integrate surface water and groundwater quality concerns within basins and watershed to more effectively protect and restore surface water and groundwater uses;
- provide increased opportunities for citizens to participate directly in water quality projects;
- implement measures to protect drinking water from the impacts of nonpoint source pollution; and
- evaluate, update and revise the NPSMP to reflect the most current Section 303(d) list of impaired waters, or every five years as needed.

In FFY2010, the Iowa Department of Natural Resources (DNR) began major efforts to update the NPSMP, as required by the Environmental Protection Agency (EPA). The DNR Watershed Improvement Program identified two main components needed in the new plan: compiling an inventory of existing nonpoint source programming in Iowa, and developing a vision of Iowa's nonpoint source pollution reduction goals and action steps. As part of the update process, the DNR Watershed Improvement Program began compiling an inventory of DNR programs related to nonpoint source pollution reduction, and it convened an internal DNR meeting to discuss new DNR nonpoint source programs created since the 2000 NPSMP was completed.

Beginning in early 2011, DNR continued gathering nonpoint source program information from partner agencies and stakeholder groups to compile a comprehensive inventory of nonpoint source programming in Iowa. The core partner agencies which provided an inventory of nonpoint source programming in Iowa included DNR, the Iowa Department of Agriculture and Land Stewardship Division of Soil Conservation (IDALS-DSC), Iowa State University (ISU) Extension, Conservation Districts of Iowa, and the Natural Resources Conservation Service (NRCS). The inventories of each core partner agency were compiled by DNR and incorporated into one inventory document that identifies the partnership's existing programs designed to address nonpoint source pollutants.

In addition to compiling an inventory of existing nonpoint source programming, the core partner agencies agreed that it was necessary to involve a group of stakeholder organizations to help create a statewide vision of what still needed to be done to address nonpoint source issues in Iowa. In order to help develop this statewide vision, DNR hired the University of Northern Iowa's Institute for Decision Making (UNI IDM), to facilitate a visioning process that included nonpoint source partner agencies and stakeholder groups to develop the vision component of the updated NPSMP. The core partner agencies identified 55 stakeholder groups with an interest in participating in a visioning process to update the NPSMP. To most effectively lead the visioning process, UNI IDM recommended that a group of no more than 30 individuals representing the stakeholder groups and partner agencies participate in a series of visioning sessions. To create the visioning session group, the list of 55 stakeholder groups was divided into 8 different categories, based on the type of organization represented. Of the different categories, stakeholder leaders in each of the categories were identified and were asked by UNI IDM to recruit other team members from their category to participate in the vision sessions. Through this process, the stakeholder team leaders selected the group of 20 stakeholders which made up the NPSMP visioning team. An additional 10 "seats" we reserved for the core partner agencies to participate in the visioning process.

Four visioning sessions of the stakeholder groups were held during the spring and early summer of 2011, with UNI IDM facilitating the sessions. During the visioning sessions, the stakeholder groups identified primary issues related to abating nonpoint source pollutants in Iowa. From these issues, the group then identified major goals, and objectives needed to improve water quality in the state. The core partners then convened several meetings of topic experts to develop a set of action steps needed to fulfill the 20 objectives that were identified by the visioning team.

In addition to conducting the visioning sessions, DNR, through UNI IDM, contracted with the ISU Sociology Department to conduct listening sessions with farmers and with urban residents in Iowa to gather input about their general understanding of water quality and nonpoint source issues in Iowa. A total of three farmer listening sessions and one urban session were held. The results were compiled in a document called "Water Quality Matters to Us All". Dr. Jacqueline Comito, of the ISU Sociology Department, who led the listening sessions, reported at one of the NPSMP visioning sessions about these

listening sessions, as a way to inform the visioning team and incorporate the issues identified by farmers and urban residents into the visioning sessions.

UNI IDM posted on its webpage the various documents developed through the NPSMP update process. These documents include the inventory of nonpoint source programming, summaries of each of the visioning sessions, and the “Water Quality Matters to Us All” report. These documents may be found at the website below:

<http://www.bcs.uni.edu/idm/index.html>

A final draft of the updated NPSMP was completed in March of 2012, and was presented to the public through a series of five meetings held across Iowa in April of 2012. The plan was also made available to the public on the websites of the Iowa DNR and UNI IDM. During a 45-day period after the release of the NPSMP, public comments were received, recorded, and all comments were provided a response. The public comments and DNR responses were then incorporated into a final NPSMP, which was submitted to EPA in June of 2012 for review and approval. Iowa then received EPA’s official approval of the updated NPSMP in August of 2012. The updated NPSMP may be found on the found on the following Iowa DNR website:

<http://www.iowadnr.gov/Environment/WaterQuality/WatershedImprovement/WatershedPlanning/NonpointSourcePlan.aspx>

The following FFY 2012 report summarizes progress made toward achieving the NPS goals for the final year of Iowa’s NPS activities under the 2000 NPSMP.

Iowa's Section 319 Program

Overview

Congress added Section 319 to the Clean Water Act in 1987 because it recognized the need to support state and local nonpoint source (NPS) pollution control efforts. The Environmental Protection Agency (EPA), through the Section 319 program, provides grant funds to states to implement NPS pollution control programs and projects.

In Iowa, the designated lead agency for the 319 program is the Iowa Department of Natural Resources (DNR). The DNR has received Section 319 funding annually since FFY90. While a portion of Iowa's funding is used to support program administration and implementation activities conducted by DNR staff, the majority is used to support 3 to 5-year implementation projects conducted by cooperating agencies such as soil and water conservation districts (SWCDs), county conservation boards, universities, and other state or federal agencies or private organizations involved in watershed protection efforts. Projects funded with 319 funding include NPS information and education programs, demonstration of innovative and alternative Best Management Practices (BMPs) for controlling NPS pollution, and implementation of NPS controls in priority watersheds.

Due to the predominance of agriculture in Iowa and the resulting impact of agricultural NPS pollution on Iowa's water resources, NPS control projects are primarily aimed at preventing and reducing agricultural pollutants. However, DNR has also funded projects that solely address urban concerns or include an urban component, if such is a concern in a targeted watershed. Projects that show a partnership of multiple local, state, and federal agencies, as well as private entities, are strongly encouraged. In addition, all projects must include an information and education component, and the use of new and innovative BMPs is encouraged.

The EPA Section 319 grant is divided into two separate parts: the Incremental portion and the Base portion. EPA requires that the Incremental portion of the state's Section 319 grant be targeted towards assessing and restoring the impaired waters of the state. The Base portion of the grant award supports the administration of the state nonpoint source program, in addition to supporting nonpoint source projects of a statewide nature or those that are designed to protect a waterbody from potential nonpoint impacts. Iowa's total Section 319 grant award from EPA for FFY2012 was \$3,585,000. The amount of funding allocated by EPA to the Incremental portion of Iowa's FFY12 grant was \$2,291,000, whereas the remaining \$1,294,000 in funding was allocated by EPA to the Base portion of the grant.

Application Process

A joint application process was used to obtain NPS water quality implementation project applications for funding consideration under the Section 319 program (administered by DNR), the state Water Protection Fund (WPF) and the Watershed Protection Program Fund (WSPF) (both administered by IDALS DSC). Many of the projects selected for

funding receive a combination of Section 319, WPF and WSPF, as well as funds from other agencies and private entities.

To be eligible for 319 project implementation funding, applicant watersheds are required to have a DNR-approved, 9-element watershed management plan (WMP). Since this eligibility restriction does not apply to WPF and WSPF programs, watershed project applicants may apply for WPF and WSPF project funding without applying for 319 funding. The DNR Watershed Implementation Grant provides 319 funding for the project implementation, either solely or jointly with WPF and WSPF matching funds. The DNR Watershed Planning Grant, initiated in 2009, provides funding for local watershed groups to develop WMPs to address impaired waters. Planning Grant funds were not included in Iowa's 2012 Section 319 grant application, however, due to the 2011 reduction in Iowa's Section 319 grant award.

The DNR Watershed Implementation Grant Request For Applications (RFA) and the Watershed Planning Grant RFA were sent January 6, 2012 to all 100 Soil and Water Conservation Districts (SWCDs) in Iowa, county conservation boards, and a variety of other organizations, agencies, and universities. Applications were due April 1, 2012. During 2012, a total of nine applications for joint project implementation funding requests (DNR 319 and IDALS DSC funding combined) were received, totaling \$6,393,138 (including \$4,890,036 in 319 funds and \$1,508,102 in IDALS-Watershed Protection Funds), and one additional application was submitted for 319-only funding, totaling \$584,261.

Project applications were reviewed and ranked by an inter-agency review committee based on criteria outlined in the NPSMP. The criteria included the need for the project, suitability of project measures, budget, comprehensive workplan, potential for success and participation of partners. A meeting was held May 30, 2012 with the inter-agency review committee members, including representatives from Conservation Districts of Iowa (CDI), ISU Extension, Leopold Center for Sustainable Agriculture, EPA, NRCS, IDALS-DSC, and DNR, to review and discuss individual project applications.

Based on the recommendations of the committee and the department's needs in terms of addressing critical NPS issues, a FFY2012 Section 319 workplan of proposed projects was developed and submitted to EPA Region VII for final approval in late July of 2012. Approval was granted for the state workplan in the fall of 2012, and approval of individual project plans were anticipated in early 2013.

EPA Region VII awarded Iowa's FY2012 Section 319 grant in October of 2012, subject to EPA-approved revisions to project implementation plans and the completion of EPA-approved watershed management plans for selected projects. Upon award of the grant and completion of EPA requirements, contracts are developed with project sponsors and the project activities are initiated.

Administration of Section 319 Program

As the state agency having primary responsibility for implementation of Iowa's state Nonpoint Source Management Program (NPSMP), the Department of Natural Resources (DNR) must conduct numerous activities related to implementation of the overall NPSMP and the individual nonpoint pollution control projects being carried out in Iowa. DNR's responsibilities in implementation of the overall NPSMP include: coordination at a state level of the nonpoint pollution control program and project activities of federal, state, and local agencies; review of federal programs and projects for consistency with the state's NPSMP; and, carrying out a variety of activities essential to implementation of the NPSMP, such as updating the NPSMP to reflect changes in federal and state laws and programs, responding to requests for information and assistance from the public, developing Section 319 grant applications and project implementation plans, and providing EPA with annual and final reports on the state's nonpoint source programs and projects.

DNR's responsibilities for implementation of individual nonpoint source pollution control efforts vary from project to project. For those projects receiving Section 319 funds, DNR's responsibilities are extensive, and include: solicitation and review of project proposals; selection of projects for which funding will be requested and development of grant applications and project implementation plans; negotiation with EPA on project funding; development of contracts or agreements for funded projects; and reporting of project achievements to EPA and the public. In addition, for some projects DNR has specific direct implementation responsibilities.

The DNR Watershed Improvement Program also provides assistance to local watershed groups to conduct watershed assessments through the use of Geographic Information System (GIS) technology, with direct technical assistance provided by a DNR GIS Specialist. The types of GIS watershed assessments conducted include land use assessments, streambank assessments, LiDAR-derived incised features assessments, gully assessments, livestock assessments, and urban assessments. With this assistance, local watershed groups developing plans and implementation projects are able to prioritize and focus efforts to areas and practices allowing for maximum water quality benefits. In addition, using the data obtained through this assistance, actual water quality benefits are more easily documented. The use of maps and other visuals produced with the GIS technology provides a tool to educate the public (including landowners, concerned citizens, public officials, school children, etc.) regarding watersheds and water quality issues.

Providing public information and education (I & E) continues to be an integral part of DNR's role in implementing the NPSMP. To support a variety of NPS pollution I & E activities, Section 319 funding formerly provided for an Information Specialist position within the DNR Communications Bureau. This position assisted individual watershed projects with I & E efforts through the development of project brochures, fact sheets, newsletters, and public presentations. In addition, the Information Specialist position has been involved in a number of statewide NPS I&E efforts, such as developing an annual water quality success story publication, distributing a quarterly electronic newsletter on watershed and water quality topics, updating watershed improvement program annual

reports, updating selected water quality project brochures, plus developing presentations for legislative presentations, TMDL and Section 303(d) meetings, animal waste issues, etc (see “Communications” section below for more detail). The DNR Communications Bureau continues to provide communication support to the above efforts but, due to changes in that bureau’s functions, it now provides support to the DNR Watershed Improvement Program on an as-needed basis, upon request, rather than through a position dedicated to NPS programming and funded by Section 319 funding.

Progress toward achieving goals:

Iowa’s NPSMP identifies a number of short and long-term goals, objectives, and strategies to protect the states surface waters and groundwater from nonpoint source pollution. The progress made during FFY2012 toward achieving these goals is summarized below.

GOAL: To continue and increase water quality protection and restoration on a watershed basis

State and federal water quality funds support watershed project coordinators, information/education activities and financial incentives for a variety of best management practices (BMPs) to reduce sediment loading from erosion of cropland, streambanks, and construction sites; to reduce nutrient loading from commercial ag and lawn fertilizer, animal and wildlife wastes, and other documented sources; and to reduce bacterial loading from human wastes, animal and wildlife wastes, and other documented sources. BMPs employed include: nutrient and pest management programs, grassed waterways, grass/tree filter strips, wetland restoration, sediment basins, contour farming, pasture and hay land management, critical area plantings, streambank stabilization, stream corridor fencing, alternative watering systems, sinkhole and spring protection, no-till farming, animal waste management structures and grazing management. Urban BMPs, such as pervious pavement, rain gardens, and bioswales, allow runoff water to infiltrate into the soil in highly developed areas, instead of carrying pollutants directly into receiving lakes, streams, and rivers.

Three water quality success stories were submitted to EPA in FFY2012 for either the WQ-10 or SP-12 categories.

Clear Creek (WQ-10)

Runoff from agricultural areas and waste from leaking septic systems sent pollution to Clear Creek, causing the stream to not meet several of Iowa’s water quality standards. As a result, the Iowa Department of Natural Resources (DNR) added a 7-mile segment of Clear Creek to the state’s Clean Water Act (CWA) section 303(d) list of impaired waters in 2004. Watershed partners used agricultural best management practices (BMPs) and coordinated construction of a wastewater treatment facility to replace leaking septic systems. Water quality improved, prompting DNR to remove Clear Creek from Iowa’s list of impaired waters in 2010.

Clear Creek was accepted in 2012 as an EPA Section 319 Success Story, and is available on the EPA Section 319 Success Story webpage at:

<http://water.epa.gov/polwaste/nps/success319/>

Binder Lake (WQ-10)

Built in 1942 to provide drinking water for the southwest Iowa city of Corning, 80-acre Lake Binder sits about 1 mile northeast of town. Over the years, as pasture became corn and soybean fields, soil erosion and gully erosion from the 1,994-acre watershed increased, significantly degrading Lake Binder's water quality and reducing its storage capacity. The lake has a watershed-to-lake area ratio of 25 to 1.

Through a watershed project, landowners used a variety of conservation practices, such as grade stabilization structures (ponds), terraces, manure injection, grass waterways, rotational grazing systems and enrollment in the Conservation Reserve Program (CRP). This significantly improved water quality. To complete the project, an in-lake renovation in 2005 included a complete fish population renovation, shoreline stabilization and fish habitat development. In 2012, the lake's aquatic life impairment was removed from Iowa's impaired waters list, showing that the lake now fully supports all of its designated uses

Binder Lake was accepted in 2012 as an EPA Section 319 Success Story, and is available on the EPA Section 319 Success Story webpage.

Clear Lake (SP-12)

The Clear Lake watershed is located in the Des Moines Lobe landform and is part of the larger prairie pothole region. The watershed area was once a vast tall grass prairie ecosystem with several wetlands in shallow depression areas. Much of the shoreline of the lake was an oak savanna. Today, the 8,454 acre Clear Lake watershed consists primarily of row crop production (54%), urban/roads (16%), and wetland/CRP (9%) land uses. The watershed to lake ratio is 2.3 to 1, which is very small compared to many other Iowa lakes. A 740-acre wetland complex known as Ventura Marsh is located on the west edge of Clear Lake and flows directly into the lake. A significant amount of the Clear Lake watershed, roughly 1,500 acres, is in public ownership. Another 500 acres of land is in private ownership, but is open for public use. The watershed has a varying topography, with slopes from 0 to 25 percent. However, the vast majority of the watershed (83%) is nearly level, with slopes ranging from 0 to 5%.

In agricultural areas, wetland restoration and prairie establishment have been the primary practices installed. To date, over 750 acres of row crop land has been restored to wetland and prairie, and another 250 acres are scheduled for future restoration. Programs to encourage farm operators to use conservation tillage and nutrient management practices have also been conducted. In developed areas, more than 50 urban conservation practices

have been installed. The practices include rain gardens, permeable pavement, infiltration trenches, and grit collection chambers. Nearly all of the storm water outlets that drain 5 acres or more have now been protected by these practices. Efforts to improve Ventura Marsh by controlling water levels were implemented in 2011. The primary purpose of water level control at Ventura Marsh is to allow the marsh to mimic periodic drought conditions, to reduce carp populations, and increase vegetation growth. These measures are expected to result in a significant reduction in sediment and phosphorus concentrations in the water leaving Ventura Marsh and entering Clear Lake.

The water quality of Clear Lake is degraded by several pollutants that enter the lake from nonpoint source runoff. The contaminants that have the greatest impact on the water quality of Clear Lake are described in more detail below. In 2005, the Environmental Protection Agency (EPA) approved a water quality improvement plan, also known as a total maximum daily load (TMDL), that set numeric targets for total phosphorus (TP), chlorophyll a (CHL), and Secchi depth (SD), based on Carlson's Trophic State Index (TSI). The TSI goal can be converted to actual concentration amounts based on the formula used to derive the TSI. The current water quality of Clear Lake has been determined by taking the mean of the previous three years (2008-2010) of data for all three lake sample sites. The results of both methods for estimating current conditions are shown below. The monitoring was performed via a cooperative agreement between ISU, IDNR, CLEAR Project, and the University Hygienic Laboratory. The monitoring data are stored on the DNR's STORET database.

Recent water monitoring results show that Clear Lake is now meeting the targets set by the IDNR and the EPA in the Clear Lake Total Maximum Daily Load plan for algae and nutrients. These targets were developed as a means of enabling Clear Lake to support its designated uses. However, the data show that the Secchi disk depth goal is only barely being met, indicating that the lake is in a transitional phase but has not yet clearly demonstrated the ability to achieve the desired water clarity on a consistent basis. Further efforts are needed to maintain the current water quality and provide additional water clarity improvements to ensure Clear Lake continues to meet the TMDL goals.

During FFY2012 the following new water quality projects were initiated through funding from one or more of the following programs--DNR Section 319, IDALS WPF and WSPF, DNR Lakes Restoration, state Publicly Owned Lakes Program, state Watershed Improvement Review Board (WIRB), and the NRCS Mississippi River Basin Initiative (MRBI). Section 319-funded project updates are available in the GRTS database. New projects which received 2012 Section 319 funding are labeled with an asterisk (*) below:

- Badger Creek Lake*
- Yellow River Headwaters*
- Sands Timber
- Upper Otter Creek
- North Fork Maquoketa
- Waterloo Creek
- Central Park Lake

- South Chequest Creek
- Competine Creek
- Upper Cedar Watershed
- Lytle Creek
- Lindsey-Honey Creek
- Putnam County Headwaters Locust Creek and West Locust Creek
- North Raccoon River Partnership
- Lake Binder
- Lake Icaria
- Little River Lake
- Twelve Mile Lake
- West Lake (Clarke Co.)

Updated 2012 information for the ongoing projects listed above may be found through the following program websites, including, WIRB,

<http://www.iowaagriculture.gov/IWIRB.asp>

DNR Lake Restoration and Publicly Owned Lakes,

<http://www.iowadnr.gov/Environment/WaterQuality/LakeRestoration.aspx>

IDALS WPF and WSPF Water Quality Projects,

<http://www.iowaagriculture.gov/FieldServices/waterQualityProtectionProjects.asp>

USDA NRCS MRBI Projects:

<http://www.ia.nrcs.usda.gov/programs/MRBI.html>.

In addition, three Iowa watersheds with 9-element WMPs were selected in 2012 to receive targeted EQIP funding for the new NRCS National Water Quality Initiative (NWQI) program. The three watersheds—Black Hawk Lake (also called “Wall Lake Inlet”), Badger Creek Lake, and the Lower S. Fork Chariton River subwatershed of Lake Rathbun—were recommended by DNR and selected because they had completed targeted watershed plans, they had existing watershed staff in place to help market EQIP practices to landowners, there was evidence of demand for the additional practices, and there was existing water monitoring data needed to document changes in water quality. The three watersheds were officially recommended by the NRCS State Technical Committee and selected by the NRCS State Conservationist. This enabled each of the three NWQI watersheds to receive an initial allocation of \$250,000 in extra EQIP funding for eligible practices.

Due to high demand for funding, extra EQIP funds were allocated to the three watersheds in 2012 to provide funding for approved NWQI applications. The final 2012 NWQI obligations in Iowa totaled \$1.242 million, and were divided between the three approved watersheds as follows:

Black Hawk Lake: 14 applications approved for a total of \$287,000

Badger Creek Lake: 22 applications approved for a total of \$364,000

Rathbun—Lower S. Fork Chariton River: 23 applications approved for a total of \$591,000

2012 NWQI Total: 59 applications approved for a total of \$1.242 million

Water Quality Monitoring

Section 319-funded projects include a water quality monitoring component to measure water quality changes resulting from project implementation. For new projects, the initial years (years one and two) of water monitoring provide baseline water quality data, whereas monitoring conducted in later years of a project (years three and beyond) provide information as to whether water quality changes have taken place. Water quality monitoring in Iowa has shown that it is rare to document major changes in water quality in the short term.


The following Section 319 watershed projects had water monitoring activities that took place in FFY2012:

- Black Hawk Lake
- Nutting Creek
- Clear Lake
- Lake Hendricks
- Big Creek
- Lake Geode
- Union Grove Lake
- Iowa Great Lakes
- Carter Lake
- Price Creek
- Iowa Great Lakes
- Dry Run Creek
- Williamson Pond
- Rathbun Lake
- Silver Lake
- Trumbull Lake
- Muchakinock Creek

Water monitoring activities were suspended in several watersheds during the summer of 2012, due to extremely low water levels caused by the 2012 drought conditions. The results of water monitoring are discussed with project coordinators and project partners at project annual review meetings.

Water quality trends and improvements in Iowa's lakes and streams, including those for the waterbodies listed above, may be found in the DNR online 305b Water Quality Assessment database:

<http://programs.iowadnr.gov/adbnnet/index.aspx>

In addition to providing detailed water quality assessment information, the database lists water quality trends for each waterbody as improving, stable, declining, unknown, or not applicable. 

Watershed Planning and Implementation

In FFY2012, the DNR Watershed Improvement Program continued to offer the DNR Watershed Planning Grant, initiated in 2009, as a way to provide financial and technical assistance to local watershed groups to develop a 9-element WMP. Eligibility for the DNR Planning Grant includes soil and water conservation districts, county conservation boards, cities and counties, and other public and private organizations capable of developing watershed management plans. Watershed eligibility for the DNR Planning Grant is limited to watersheds of 50,000 acres or less in size that drain to an impaired waterbody, in order to target watersheds small enough in size that water quality improvement can be measured. More information about the Planning Grant program is available on the following DNR webpage:

<http://www.iowadnr.gov/Environment/WaterQuality/WatershedImprovement/WatershedPlanning/WatershedPlanningGrants.aspx>

During FFY2012 one round of DNR Watershed Planning Grant applications were solicited, with applications due on April 1, 2012. One application was received, for a total request in grant funds of \$50,000, but the application was not awarded funding.

In 2012, Section 319 funds supported the development of the first watershed protection plan in Iowa, in the Waterloo Creek watershed, in Allamakee County. Waterloo Creek, a coldwater trout stream, is a high quality resource on Iowa's Outstanding Waters list, but is threatened by sedimentation from the watershed. The objective of the plan is to identify practices needed to be implemented to protect its status as a high quality trout stream.

Also, DNR continued to offer its Watershed Action Plan guidebook designed as an Iowa-based template for local watershed groups developing a 9-element watershed management plan. The guidebook was based on the EPA Handbook for Watershed Planning. An electronic copy of the guidebook can be found on the Iowa DNR website below:

<http://www.iowadnr.gov/Environment/WaterQuality/WatershedImprovement/WatershedPlanning/ManagementPlans.aspx>

The Watershed Action Plan guidebook is currently being updated and should be finished by spring of 2013.

The following waterbodies had local groups involved with watershed planning activities in 2012 without the use of Section 319 funding:

- Central Lake Park
- Easter Lake
- Lake Miami
- Beeds Lake

DNR Watershed Improvement staff (including Section 319 Project Officers and Basin Coordinators) and IDALS DSC staff (including Basin Coordinators) continued working with local watershed groups to provide them with technical assistance in developing 9-element WMPs. Since completing an approved, 9-element WMP is required before a watershed is eligible to receive Section 319 funding to implement a watershed plan, providing planning assistance to local watershed groups is nearly essential for that watershed to eventually be eligible to receive Section 319 project implementation funding.

During FFY 2012, four 9-element WMPs were reviewed and approved by the DNR Watershed Improvement Program. These watersheds included:


- Don Williams Lake
- Lyons Creek
- Badger Creek Lake
- Yellow River Headwaters

With the addition of the 4 new WMPs approved in 2012, the number of approved WMPs in Iowa reached twenty, as of September 30, 2012. An additional ten WMPs are currently being developed through local watershed groups, with ongoing assistance from DNR and IDALS DSC, and are considered “pending.” A complete list of the approved WMPs is located on the Iowa DNR Watershed Improvement website:

<http://www.iowadnr.gov/Environment/WaterQuality/WatershedImprovement/WatershedPlanning/ManagementPlans.aspx>

New Watershed Implementation Projects included in the DNR Section 319 FFY2012 grant application request to EPA, based on previously-approved WMPs, included:

- Water Quality in Rathbun Lake—2012
- Big Creek Lake
- Silver Creek (Clayton)
- Iowa Great Lakes
- Tete des Morts Creek, Phase 3
- Yellow River Headwaters
- Badger Creek Lake

DNR received approval for funding and project initiation for the above projects in the fall of 2012 

The DNR Watershed Improvement Program partnered with IDALS DSC in 2009 to initiate an optional, supplemental water monitoring component to the DSC Watershed Development and Planning Grant. Although the DSC Development Grant Program has resulted in useful watershed assessment data for grant recipients, additional water monitoring is often needed to help determine the specific locations and sources of water quality problems that may be the primary cause(s) of impairment in a watershed. For this reason, DNR agreed to add a DNR Water Monitoring Supplement grant in 2010, funded

by Section 319 funds, to the DSC Development Grant to enable Development Grant applicants to apply for more funding from DNR to conduct additional water monitoring, if needed.

Applications for the DNR Water Monitoring Supplement are considered for SWCDs that are awarded a DSC Watershed Development and Planning Grant and that provide evidence that additional water monitoring is needed to help determine the specific locations and sources of water quality problems that may be the primary cause(s) of impairment(s) in the watershed.

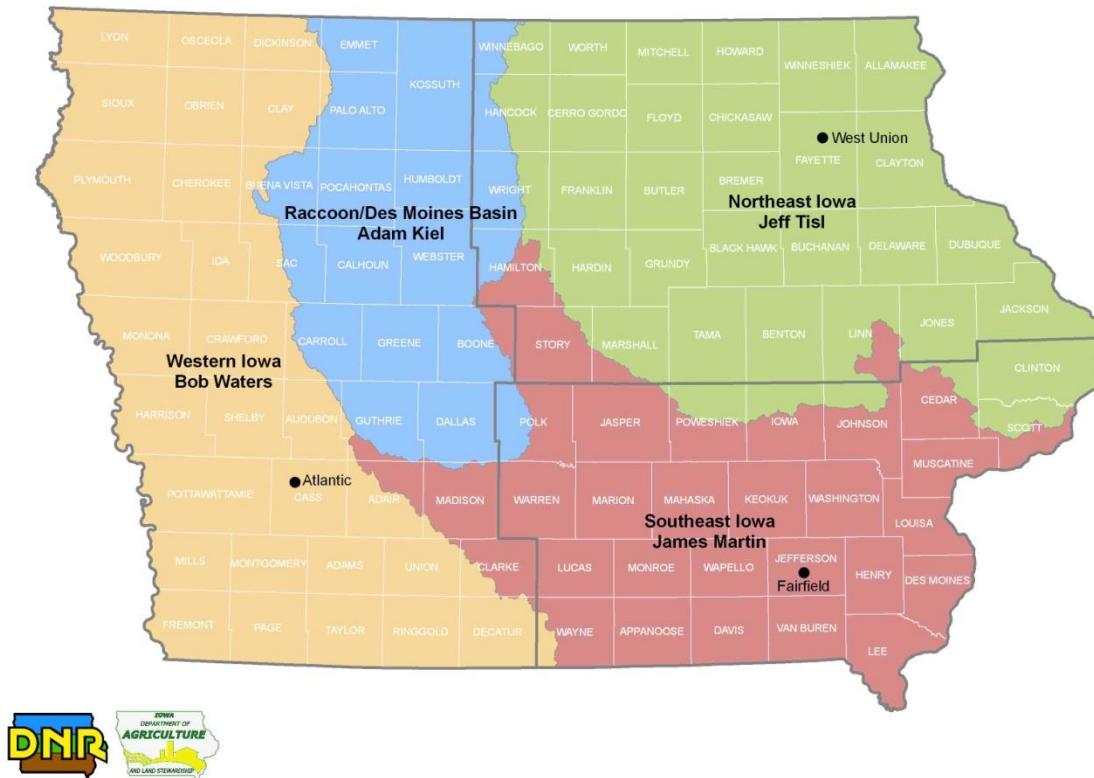
In 2012, the following impaired watersheds received funding to conduct additional monitoring through the DNR Water Monitoring Supplement:

- West Lake (Clarke County)

Basin Coordinator Network

In 2008, the DNR Watershed Improvement Program initiated a discussion within its core partnership (DNR, Iowa Department of Agriculture and Land Stewardship – Division of Soil Conservation, Natural Resources Conservation Service, and the local Soil and Water Conservation Districts) to explore rethinking and reshaping the approach used to deploy staff resources to more effectively support efforts to improve watershed management and improve water quality throughout the State of Iowa. As a result of this discussion, DNR and DSC established a network of four Basin Coordinators, with territories based on river basin boundaries, to provide assistance to local watershed groups in conducting watershed assessments, developing watershed management plans, and applying for watershed project implementation funding. Three of the Basin Coordinators are co-funded by DNR and DSC and are employed by DSC and one is fully funded and employed by DNR. The Basin Coordinators work with groups within their respective basin area, as shown on the map below (see Basin Coordinator map below).

4 Basin Coordinator Areas



In late 2010, DNR added a separate Basin Coordinator to facilitate watershed planning efforts in the Iowa and Cedar River basins. The recently added Iowa/Cedar River Basin Coordinator is actively supporting the U.S. Army Corps of Engineers Iowa River Basin Interagency Coordinating Team (IRBICT), as well as the grassroots Cedar River Watershed Coalition. The IRBICT, led by the Corps of Engineers, is working toward preparing a Watershed Plan for the entire Iowa/Cedar River Basin over the next several years. This staff position is also providing technical support to the Upper Cedar River, Indian Creek, Turkey River, and Catfish Creek watershed management authority processes that were initiated in late 2011.

Individuals assigned as DNR and DSC Basin Coordinators performed the following duties during FFY2012:

- Advise and serve as liaison between the DNR Nonpoint Source Pollution Management Program, the Iowa Department of Agriculture and Land Stewardship (IDALS) – Division of Soil Conservation (DSC), local watershed coordinators, Soil and Water Conservation Districts (SWCDs), and other local watershed groups.

- Facilitate local watershed planning and project meetings and activities, and advise and assist watershed coordinators, SWCDs, and other local watershed groups in the development and implementation of watershed management plans, and the development and implementation of watershed projects in accordance with the watershed plan and the watershed project plan of operations and budget(s).
- Assist and advise watershed coordinators in building linkages with technical resource personnel from state and federal agencies and with university research and outreach personnel, to facilitate technical inputs needed for achieving watershed plan and section 319 watershed project objectives.
- Offer and, where accepted, provide direct technical assistance to SWCDs, other units of local government, and other local watershed groups to assist them in the conceptualizing, organizing, and developing watershed management plans and implementation projects to address water quality protection and improvement.
- Initiate contacts and respond to requests from SWCDs and other local watershed groups for assistance, background information, and watershed management plan development advice.
- Seek input from local watershed groups on developing state watershed improvement priorities and target priority watershed areas for developing watershed management plans and subsequent watershed projects.

IOWATER Volunteer Water Monitoring Program

The IOWATER program is a volunteer water monitoring program located within the DNR Geological and Water Survey Bureau, Watershed Monitoring and Assessment Section. Water monitoring data collected by IOWATER volunteers provide preliminary information that can be used by the Watershed Monitoring and Assessment Section to determine water monitoring priorities for its professional monitoring programs. Data collected by IOWATER volunteers are not considered “credible data” according to Iowa law, and therefore are not included in the state’s 305b report.

In FFY 2012, the IOWATER program trained 251 volunteers across Iowa (3,866 trained since program inception) who collected water samples from 120 IOWATER registered sites. There are IOWATER registered monitoring sites in all 99 Iowa counties, plus eight counties in Minnesota and one county in each of the following neighboring states: Nebraska, Illinois, and South Dakota. The out-of-state sites are located on tributaries of Iowa waters.

More information about IOWATER may be found on the following webpage:

www.iowater.net

Establish 7 volunteer monitoring programs annually in priority watersheds through water quality projects (NPSMP goal):

In FFY 2012, the following watershed projects have established volunteer water monitoring programs:

- Dry Run Creek Watershed
- Iowa Great Lakes Watershed Project
- Silver Lake Watershed
- Yellow River Watershed
- Upper Cedar Watershed
- Lytle Creek
- Black Hawk Lake Watershed Project
- Big Creek Lake Watershed Project

Provide GIS maps for all water quality projects. GIS will be used to track BMPs installed and to calculate sediment, phosphorus, and nitrogen reductions as a result of the BMPs installed.


The DNR Watershed Improvement Program employs a GIS Specialist whose primary duties are to provide GIS mapping assistance to prospective and current watershed projects and to calculate annual load reductions resulting from BMPs implemented through watershed projects. Typical GIS support to watershed projects includes assisting with assessments (land cover, stream and gully), analyzing data, and providing outputs used to target high priority areas to address impairments.

During FFY2012 the DNR GIS Specialist developed the following maps as part of the GIS assistance to watershed projects:

- Created 1,565 maps
- Developed approximately 60 statewide maps pertaining to watershed projects, management plans, and impaired waters
- Developed over 100 map sets for HUC12 level watershed projects and plans
- Developed 8 map sets for HUC8 level basin planning
- 11 kiosks using GIS maps were installed in state parks throughout the State. The kiosks highlight the benefits 319 funding had within each state park's watershed.

Load Reduction calculation

The GIS Specialist also compiled pollutant load reduction calculations for various BMPs installed through 319-funded watershed projects in FFY2012:

Practice Type	Estimated Sediment Delivery Reduction (t/y) ¹ 	Estimated P Reduction (lbs/yr) ²	Estimated N Reduction (lbs/yr) ³	Number of Practices
Streambank Stabilization	162	211	324	4
Filter Strips	484	629	1,161	5
Misc BMPs	576	3,816	20,954	32
Sediment Basins	5,379	6,992	10,757	46
Waterways	5,231	6,800	10,462	28

Terraces	4,889	6,356	0	109
Urban	17	59	378	14
Total	16,721	24,804	43,658	196

Incised Topographic Features Assessments:

In 2011, a new GIS assessment tool was developed by DNR GIS to locate, as well as estimate the depth and erosion severity of incised topographic features (i.e. gullies). In 2012, this method of preliminarily assessing gully depth and severity gained popularity amongst project coordinators. This tool utilizes Iowa's state-wide, high-resolution, elevational LiDAR dataset and produces maps and spreadsheets coordinators use to prioritize which gullies within a watershed are the best candidates for field gully assessments. The tool's maps and data tables also allow coordinators to effectively illustrate to landowners the benefits of constructing BMPs.

Land Cover/Soil Loss/Sediment Delivery Assessments

Watershed field assessments using tablet computers are used to collect land cover, tillage, crop residue, and management information for priority watersheds. Using the land cover information and the RUSLE soil loss equation, sheet and rill erosion maps are created estimating the amount of soil erosion occurring in a watershed. The equation takes into account land cover and management, slope steepness, slope length, soil erodibility, and rainfall. Sediment delivery maps are created from the sheet and rill data taking into account such factors as the watershed's terrain, size of the watershed and watershed shape. Additionally, any pre-existing practices (i.e. terraces, waterways, filters, sediment control structures) are given an appropriate sediment reduction credit based on their trapping efficiencies. The sediment delivery maps are used to estimate the amount of sediment reaching the outlet of a watershed and to target "hot-spots" for targeted conservation practices.

Stream Assessments

The stream assessment procedure, entitled RASCAL (Rapid Assessment of Stream Conditions Along Length), was developed in 2006 and refined in 2007 to inventory in- and near-stream characteristics such as bank erosion, substrate, aquatic habitat, riparian cover, livestock access and more. The procedure requires watershed project personnel to walk the length of stream being assessed and note conditions using a GPS equipped PDA. When complete, the data and resulting maps are used to identify possible areas for targeted BMP implementation.

Gully Assessments

Gully erosion has become an area of focus for some of Iowa's watershed projects. In 2007 an assessment tool similar to the RASCAL was developed to assess erosion from classic gullies. The assessment tool collects gully length, depth, recession rate, and location data. The resulting data is used to quantify sediment loading from specific locations as a means to identify and target gullies contributing high amounts of soil to priority waterbodies.

Examples of GIS assessment maps developed by DNR for watershed projects are found in Appendix C.

Statewide Projects

Several Section 319-funded projects address water quality issues on a statewide or regional basis, rather than a watershed basis. For example, Iowa Learning Farms is an educational and demonstration project that involves cooperating farmers across the state. Another statewide project, the Community Assessment Tool Development Project, is developing a manual to enable local watershed groups to conduct assessments of the residents living in the watershed to gauge their willingness to improve water quality. Also, the Small Feedlot Education Project is developing water quality information, including publications, fact sheets, and a video, to owners and operators of small beef and dairy feedlots across Iowa. Water Rocks! is a new project led by the Iowa Water Center at Iowa State University to initiate a statewide youth water education program.

The following are Section 319-funded projects that in FFY2012 demonstrated and evaluated Best Management Practices or that provided technical assistance or information on a regional or statewide basis:

- Iowa Learning Farms Project
- River Use Survey – Phase 2
- Small Feedlot Education Project
- Community Assessment Tool Development Project
- Statewide Mussel Survey
- Water Rocks!

Project summaries of the above projects can be found in EPA's Grants Reporting and Tracking System (GRTS). The summaries provide additional details of the projects, water quality impairments, practices being implemented, funding provided, and project partners. In addition, the Section 319 project allocations for each project can be found in GRTS. More information may be found on the EPA GRTS website:

<http://iaspub.epa.gov/pls/grts/f?p=110:1>

Although the projects have been categorized by primary type of project, many of the projects have multiple components, such as many of the lake, coldwater stream or warm water stream projects that also address urban NPS issues. All of the projects have an information/education component which includes activities such as: field days, press releases, brochures, demonstration site signs, school and public meetings, etc.

Watershed Program Communications:

In 2012, the DNR Communications Bureau undertook a number of projects to promote the DNR's Watershed Improvement Section programming and efforts to provide information and education on a watershed basis.

The quarterly e-newsletter, *Clean Water Starts with Us*, continued in 2012. It was developed for current and potential clients, including existing and prospective watershed

projects, SWCDs, county conservation boards, and the core nonpoint source partner agencies. Copies of each quarterly newsletter developed since 2008 are available on the following DNR webpage: <http://www.iowadnr.gov/Environment/WaterQuality/WatershedImprovement/WatershedNews.aspx>. In 2011, the newsletter received a 2010 second place national award from the Association for Conservation Information's (ACI) in its national competition in the external newsletter category. In 2012, *Clean Water Starts With Us* received a third place award for its 2011 issues.

The Communications Bureau also led an effort to promote the recreational and environmental benefits of conservation efforts along the multi-use recreational Sauk Rail Trail in the Black Hawk Lake watershed. A number of educational kiosks educate trail users about prairie, aquatic life, conservation practices, watershed boundaries and more.

In FFY2012, the DNR Communications Bureau completed the following projects related to nonpoint source and water quality programming:

- Distributed more than 700 copies of the annual watershed success story publication
- Sent at least seven news releases about watershed issues
- Sent at least three dozen press releases about manure spills, fish kills, and other water quality-related announcements
- Sent watershed grant information more than 400 people and organizations
- Developed presentation materials for DNR staff presenting at the SWIM workshop, for the Cedar River Coalition

More information may be found in the GRTS database.

Some of the other major activities conducted through the Section 319 information/education staffing support include:

- Developed "Working for Clean Water: 2011 Watershed Improvement Successes in Iowa," an annual publication since 2007 that highlights eight success stories of Iowans improving their streams, rivers and lakes. The publication is available on the following webpage: <http://www.iowadnr.gov/Environment/WaterQuality/WatershedImprovement/WatershedSuccesses.aspx>
- Developed promotion plans for the DNR Watershed Planning Grants and DNR Watershed Implementation Grants, maintaining a list of target audiences and creating e-mail blasts, fact sheets, news releases and more to reach potential grant applicants and encourage them to apply.
- Prepared news releases and other materials for TMDLs.
- Prepared news releases for EcoNewsWire and for various publications, announcing success stories, pollutant reductions, calls for grant applications, etc.
- Sent listserv messages to watershed coordinators announcing training and grant opportunities, as well as other items of interest to coordinators

- Maintained the Watershed Improvement section of the DNR website.

The DNR watershed publications may be found at the website below:

<http://www.iowadnr.gov/Environment/WaterQuality/WatershedImprovement/WatershedNews.aspx>

GOAL: To protect and restore waters identified by the 1998, 2002, 2004, 2006 2008 and 2010 Section 303(d) list of impacted waters by Nonpoint Source Pollution. TMDLs will be developed and implemented.

During FFY12, TMDLs were submitted and approved for 4 waterbodies and 8 impairments. These included:

- Briggs Woods Lake: Organic Enrichment/Low DO, Algae
- Silver Creek: Sediment, Ammonia
- Black Hawk Lake: Algae, Turbidity
- Lake Keomah: Algae, pH

In addition, TMDLs have been completed and submitted to EPA for the following 15 waterbodies and 18 impairments:

- Dry Run Creek: Connected Impervious Surface
- Yellow River Basin Project (4 main stem segments, 9 tributaries): Bacteria
 - Yellow River - IA 01-YEL-0080-segment 3
 - Yellow River - IA 01-YEL-0080-segment 2
 - Yellow River - IA 01-YEL-0080-segment 1
 - Yellow River - IA 01-YEL-0070-segment 0
 - North Fork Yellow River – IA 01-YEL-0160_0
 - Unnamed Creek (Hecker Creek) – IA 01-YEL-0155_0
 - Norfolk Creek – IA 01-YEL-0130_0
 - Unnamed Creek (Ludlow Creek) – IA 01-YEL-0150_0
 - Williams Creek – IA 01-YEL-0125_0
 - Hickory Creek – IA 01-YEL-0120_1
 - Unnamed Creek (Bear Creek) – IA 01-YEL-0110_0
 - Suttle Creek – IA 01-YEL-0100_0
 - Dousman Creek – IA 01-YEL-0090_0
- Hannen Lake: Algae, pH, Ammonia & Turbidity

Development of TMDLs was initiated and/or continued on the following waterbodies:

- Dick Creek: Biological (Stressor ID completed, no TMDL needed)
- Long Dick Creek: Biological (Stressor ID completed, no TMDL needed)
- Walnut Creek: Biological (Stressor ID completed, no TMDL needed)
- Lyons Creek: Biological
- Marrowbone Creek: Biological
- Beeds Lake: Algae
- Casey Lake: Algae, Turbidity, pH
- Little River Lake: Turbidity, Algal Growth/Chlorophyll a

- Volga Lake: Algae, Turbidity, pH

The completed TMDLs can be found at the following website:

<http://www.iowadnr.gov/Environment/WaterQuality/WatershedImprovement/WatershedResearchData/WaterImprovementPlans/PublicMeetingsPlans.aspx>

Watershed Projects were active in the following watersheds to address the impairment(s) identified by a completed TMDL:

- Clear Lake Water Quality Protection Project
- Lake Darling Water Quality Improvement Initiative
- Black Hawk Lake
- Silver Lake Watershed Project
- Williamson Pond Watershed Project
- Lake Geode
- Lyons Creek
- Big Creek Lake Watershed Project
- Iowa Great Lakes
- Silver Creek (Clayton County)
- Dry Run Creek
- Union Grove
- Dry Run Creek
- Duck Creek

Additional water quality projects were supported in watersheds of waters listed on the Section 303(d) list of impaired waters, even though a TMDL has not yet been approved.

These projects include:

- Rathbun Lake Special Project
- Tete des Morts Watershed Project
- Yellow River Headwaters
- Clear Creek Water Quality Project
- Prairie Rose Lake Water Quality Project
- Lake Hendricks Water Quality Project

The TMDL Program views public participation as an integral part of improving water quality. It is important to have buy-in from stakeholders, including local citizens, land owners, and other special interest groups, otherwise water quality improvements will be difficult to achieve through a voluntary process. For each TMDL developed, a minimum of two public meetings are held near the impaired water body to promote action from the local community. The first of these public meetings is to inform the stakeholders that a TMDL is being developed; the second is to present the draft TMDL before it is sent to EPA for approval. Comments received from the public are taken into account when developing and finalizing the TMDL. Press releases are issued through the DNR's EcoNewsWire. This weekly press release is sent to approximately 175 press agencies throughout Iowa. In addition, since FFY07, local stakeholders such as County

Conservation Boards and Soil and Water Conservation Districts have promoted local public meetings, resulting in higher attendance at public meetings.

Public meetings were held during FFY12 regarding each of the following waterbodies for which TMDLs were being developed:

- Lake Keomah
- Yellow River (3 public meetings)
- Hannen Lake

Biological Assessment Sampling of TMDL Streams

Field activities and laboratory sample analysis are conducted for the following impaired section of the identified streams:

- Indian Creek
- Maquoketa River
- Brophy Creek
- North Skunk River
- East Branch of Iowa River
- Elk River
- Roberts Creek
- Keg Creek
- Mosquito Creek
- Burr Oak Creek
- White Pine Hollow Creek
- Little Turkey River
- Miners Creek
- East Pine Creek
- Irish Hollow Creek
- Brush Creek
- West Fork of the Little Sioux River

Field activities include sampling aquatic biota, assessing stream habitat, stream flow, and a variety of field measurements. Laboratory analyses include benthic macroinvertebrate, fish species and water sampling

Water Quality Monitoring and Assessment of Lakes

The following lakes are sampled to collect data used to develop and complete the TMDL:

- | | |
|-------------------|-----------------|
| • Lake MacBride | • Windmill Lake |
| • Coralville Lake | • Browns Lake |
| • Lake Iowa | • Lake Manawa |
| • Backbone Lake | • DeSoto Bend |

GOAL To restore designated uses in streams/lakes where manure from confined animal operations is causing impairments

In 2012 Iowa DNR Field Office Staff continued to monitor animal feeding operations across the state. Most important is the DNR's focus on working with producers and other citizens to understand and comply with rules and regulations, reducing the need for enforcement. In the last 10 years, the DNR's focus on compliance has helped steadily reduce the rate of manure discharges from 5.2% to 2.5% in CAFOs larger than 1,000 animal units. This approach has led to a declining rate of impact to water quality as a result of manure discharges, even as the number of regulated farms has increase in the last decade.

DNR Field staff frequently respond to calls for assistance and information from producers, logging 84,879 contacts for compliance assistance regarding animal feeding operations since 2000. Field staff speaks to producers at agricultural association and community meetings. The DNR also provides funding to Iowa State University Extension to conduct training for manure applicators. The training and certification program has helped commercial manure applicators and confinement owners, as Iowa law requires both to be certified to handle and land apply manure. Ongoing training and testing is required for certification. Iowa State University Extension and DNR train an average of 4,500 applicators and owners every year.

In the fall of 2010, DNR initiated the Small Feedlot Education Project, funded primarily with Section 319 funds. Through this project, DNR staff, led by the DNR AFO Coordinator, are working with partners from NRCS, IDALS DSC, ISU Extension, plus beef and dairy industry partners, to develop a coordinated educational program for owners and operators of small feedlots (smaller than 1,000 animal units in size) to address the water quality impacts of small open feedlots.

In FFY2012 the Small Feedlot Project activities included:

- Sioux County Feedlot Forum- Shawn Shouse and Kris Kohl gave talk "Environmental Regulations and Runoff Control Project" to 151 people
 - ISU also had a display on the small feedlot plan, that included a poster and a water quality kit to demonstrate how to use the kit (see attached)
- Spencer Ag Day- Beth Doran and Kris Kohl manned a display that included the small feedlot plan poster and the water quality kit 500 people attended
- Wallace Farmer Article "Helping smaller feedlots, dairies adhere to rules- written by Angela Rieck-Hinz (see attached)
- Helping Small Feedlots and Dairies reduce impacts on water quality- written by Shawn Shouse and Angie Rieck-Hinz- appeared on the IMMAG web page; Iowa Beef Center Newsletter; ISU Diary Team e-Newsletter
- Small Open Beef Feedlots In Iowa- a producer guide is published. 2,000 copies printed, only 733 remain in inventory.
- ISU Press Release "Small Beef Feedlot Tour"
<http://www.extension.iastate.edu/article/small-beef-feedlot-manure-control-tour-set-northwest-iowa>
- Small Beef Feedlot Tour, 3 tour stops. Approximately 20 people in attendance

- Small Open Dairy Feedlots- a producer guide is published. 2000 copies printed; 1200 remain in inventory.
- Newsletter article for ISDA and ISU Dairy Team newsletters “New publication from ISU Extension helps dairy producers recognize and manage manure impacts on water quality” Angie Rieck-Hinz and Shawn Shouse

Several Section 319-funded watershed projects address animal waste issues by providing technical and financial assistance for BMPs such as renovating open feedlots, installing manure storage facilities, diverting runoff away from livestock areas, providing alternate water sources, fencing livestock away from streams, and other practices. For example, the Tete des Morts Creek Watershed Project is focusing on 8 high priority open feedlot sites that have been discharging animal waste directly to the creek. The project coordinator is working directly with the owners of the feedlot to redesign or renovate the open feedlots to reduce or eliminate the feedlot runoff in a manner to improve the creek’s biological impairment. As of the end of FFY2012, the project had successfully addressed seven of the eight high priority feedlot sites. More information about the Tete des Morts Creek project (and other projects) may be found in the GRTS database.

In 2012 the Yellow River Headwaters Project was selected for funding through Section 319 program. The Yellow River Headwaters is currently impaired for bacteria caused by livestock access to the stream and applied manure from the 51 livestock operations located within the watershed. Over the next 3 years the project coordinator will promote BMPs to reduce bacteria delivery from feedlots located in targeted areas. The project is set to begin in March 2013.

The Section 319-funded projects which addressed animal waste issues in FFY 2012 included:

- Lake Macbride Watershed Project
- Jordan Creek Watershed
- Price Creek Water Quality Project
- Silver Creek Watershed Management
- Lyons Creek Watershed Project
- Tete Des Morts Watershed Project
- Lake Geode Nonpoint Source Watershed Project
- Williamson Pond Watershed Project

GOAL: To develop and implement appropriate nutrient management plans on agricultural land in Iowa

In FFY 2012 local nutrient management specialists with the USDA’s Natural Resources Conservation Service (NRCS) updated Iowa’s nutrient management standard (or 590 standard) after Secretary Tom Vilsack announced USDA’s revised national standard. USDA updates this conservation practice standard at least every five years to reflect the latest technologies and agency objectives.

Iowa NRCS had until Jan. 1, 2013, to adapt the Iowa nutrient management standard to meet the new criteria and standards. Similar to the national process, NRCS worked with Iowa State University, the Iowa Department of Agriculture and Land Stewardship, Iowa Department of Natural Resources, industry, producer and environmental groups and other partners to incorporate these updates to match Iowa agriculture and resource protection goals.

Key changes in the national standard included:

- recognizing the widespread adoption of variable rate technologies to plan and apply fertilizers and providing specifications on how to plan and report their use.
- introducing a Nitrogen Leaching Index to help determine where to implement management practices for the most positive environmental impacts.
- providing guidance on using on-farm knowledge to adaptively manage nutrients.
- addressing the risk of applied nutrients entering water through tile inlets.
- directing the analysis of manure samples using certified labs.

This conservation practice standard will help producers better manage the application of nutrients on agricultural land, saving producers money and protecting or improving ground and surface water, air quality, soil quality and ag sustainability. The nutrient management standard helps producers apply available nutrient sources in the right amount, from the right source, in the right place, and at the right time for maximum agricultural and environmental benefits.

The Iowa Learning Farms Project (ILF) is an example of a statewide project supported by multiple agencies and partners that addresses nutrient issues related to agriculture. ILF is an ongoing farmer educational project administered by Iowa State University jointly funded by DNR Section 319, DSC, NRCS, the Leopold Center, and supported by CDI, ISU Extension, Iowa Farm Bureau, Iowa Soybean Association, and other private organizations. The purpose of the project is to utilize farmer partners, in conjunction with ISU researchers, to demonstrate innovative conservation farming practices implemented on their farms through farmer-to-farmer networking. For more information about Iowa Learning Farms, see the project weblink below:

<http://www.extension.iastate.edu/ilf/>

Several individual watershed projects address nutrient management issues by providing technical and financial assistance to develop nutrient management plans, to install BMPs that also require the development of nutrient management plans (as required by EQIP funds administered through the NRCS Mississippi River Basin Initiative), and by providing technical and financial incentives for cover crops and other cultural practices. More information about BMPs implemented through 319-funded watershed projects may be found in the GRTS database.

Watershed projects that in FFY 2012 addressed nutrient management issues included:

- Rathbun Lake Special Project
- Staff and Beaver Creeks Water Quality Project
- Clear Lake Water Quality Protection Project

- Badger Creek Lake Watershed Planning
- Dry Run Creek Water Quality Project
- Price Creek Water Quality Project
- Lake Geode Nonpoint Source Watershed Project
- Black Hawk Lake Watershed Project
- Lyons Creek Watershed Project

GOAL: To implement stormwater programs to reduce NPS impacts from stormwater and construction site runoff

The Urban Stormwater Management project has successfully provided outreach to MS4 city elected officials and staff, developers, contractors, and builders. Such things as the development of a model post-construction stormwater ordinance, the maintenance of the Iowa stormwater website (iowastormwater.org), meetings with stakeholders, the development of a SWPPP checklist to be used by MS4 communities, and technology transfer of erosion and sediment control design standards and specifications have raised awareness about stormwater. Other state agencies such as the Department of Economic Development and the Department of Agriculture and Land Stewardship are incorporating improved stormwater management into their programs and staffing. In addition, DNR staff is implementing the storm water program strategy at the Department field office level.

In 2012, individual DNR sponsored and partner agency funded projects which addressed stormwater and construction site runoff by implementing urban or stormwater BMPs included:

- Clear Lake Enhancement and Restoration Project
- Dry Run Creek Watershed Project
- Carter Lake
- Iowa Great Lakes Watershed
- Duck Creek

Iowa State University's Center for Transportation Research and Education completed design standards for post-construction storm water quality best management practices. The standards are included in an updated version of the Iowa Stormwater Management Manual (ISMM) (formerly called Statewide Urban Design and Specifications (SUDAS) Manual) and are being funded with storm water permit fees. A web link to the design guidelines are posted on the web at:

<http://www.intrans.iastate.edu/pubs/stormwater/index.cfm>

All of the various Iowa storm water individual and general permits can now be accessed on the web at: <https://facilityexplorer.iowadnr.gov/FacilityExplorer/Default.aspx>

NPS Pollution on Urban Landscapes

Efforts have been underway to develop urban conservation services in Iowa for over ten years. After a slow start, progress is now being made. Past efforts were primarily funded by the 319 program and featured strong educational programs and demonstrations of Best Management Practices. Efforts have shifted to specific watershed treatment projects and are increasingly being funded by money from state programs.

Current efforts focus on improving erosion and sediment control on construction sites and managing storm water runoff for water quality protection. Storm water strategies have featured infiltration-based practices that manage the water quality volume (or runoff from up to 1.25") of rain. Stabilization of urban stream corridors is becoming another priority.

In 2008 a major advance in urban conservation occurred by the creation of an Urban Conservation Program, including the creation of five urban conservationist positions, within the Iowa Department of Agriculture and Land Stewardship. Four positions are located in Soil and Water Conservation Districts (West Pottawattamie, Dickinson, Polk and Johnson SWCDs). One position, the Urban Conservation Program Coordinator, is located in the central office of IDALS Division of Soil Conservation in Des Moines.

The other significant step that occurred in 2008 was the adoption of local stormwater ordinances that require the management of the water quality volume through infiltration-based BMPs for all new development. These ordinances were adopted by the cities of Okoboji, Spirit Lake, Wahpeton, and by Dickinson County, all of which are located wholly or partly within the Iowa Great Lakes watershed, where two 319-funded projects have been ongoing. These two projects included the Iowa Great Lakes Assessment Project and the Iowa Great Lakes Infiltration Project. Also in 2008, Dubuque County adopted a Low Impact Development ordinance for new development, largely due to the educational and demonstration activities conducted by the 319-funded Upper Catfish Creek Watershed Project. It is expected that the institutionalization of stormwater management for water quality protection will continue to result from the educational programs and BMP demonstrations that were funded by the 319 program in recent years.

The counties that had or currently have established urban conservation projects include: Dubuque County, Scott County, Johnson County, Jefferson County, Linn County, Black Hawk County, Buena Vista County, Dickinson County, Polk County, Story County, Pottawattamie County and Mills County. Wapello and Warren Counties are in the process of starting up urban projects.

Green Infrastructure Workshop

There were a series of trainings / workshops conducted in 2012 that were funded by IDED on LID and Green Infrastructure. Five were conducted in September (in Charles City, DM area, Cedar Rapids, Quad Cities, and Storm Lake) for municipal officials. Three were held in October (in Cedar Rapids, Ankeny and Council Bluffs) for design professionals.

IOWA SRF Sponsored Projects:

In 2012 a new Iowa SRF program called “Water Resource Restoration Sponsored Projects” was created to help cities, watershed organizations, landowners and others address local water quality problems. Through this program, a total of \$15 million will be available per year for watershed protection practices such as stream buffers, wetland restoration and green infrastructure. This program will be implemented through the Clean Water State Revolving Fund, a loan program for construction of water quality facilities and practices, which is jointly administered by the Iowa Department of Natural Resources and the Iowa Finance Authority. The Iowa Department of Agriculture and Land Stewardship will provide technical assistance.

Cities that have an existing loan or are on the Intended Use Plan for wastewater loans will be eligible to apply for a sponsored project. Sponsored projects will allow some of the interest payments of wastewater loans to be kept and invested in local water quality projects. For each \$1 million borrowed, successful applicants will have about \$100,000 to invest in water quality work.

The City of Dubuque served as a pilot project for this new program in 2012. Dubuque’s 3 year project will convert 42 urban alleys to permeable pavers. In 2013, the program will offer its first RFA to invite eligible applicants to apply for the first year of funding from the new program.

Kirkwood Community College Class:

IDALS Urban Conservationists played a key role in initiating a new 3-credit course on rain garden design and installation at Kirkwood Community College in 2012. The course was added to the curriculum in the Agriculture and Natural Resources Department.

Dickinson County SWCD:

The Dickinson Soil and Water Conservation District funded cost-share dollars toward a total of twelve Low Impact Development (LID) practices. These practices capture about 16 acres of urban runoff that treat over 12,000,000 gallons of stormwater every year.

Education and outreach efforts were continued throughout the year by working with local cities and municipalities by incorporating LID into new developments or city construction projects. The SWCD installed signs on two different LID projects that described how the practice functions along with what benefits it will provide toward water quality.

Clear Lake Enhancement and Restoration Project:

Construction of three rain gardens were completed in FY12. Two of the rain gardens were installed by private landowners in the watershed, and one was completed on City of Clear Lake property. Promotion of rain gardens in FY12 did not result in as many interested parties as it had previously, so there may be fewer projects in FY’13.

Three permeable pavement projects were constructed in FY12. Two of the permeable pavement projects were completed on private property and one was completed on City of Clear Lake property. Permeable paver blocks were used on the two private property projects, which consisted of a walkway and a driveway. The city tested the pervious concrete for infiltration after installation and it performed very well. Pervious concrete was used for construction of a new parking lot by the City of Clear Lake.

Black Hawk County SWCD:

Fiscal Year 2012 was a very successful year for the Dry Run Creek Project. Many practices were completed and several are near completion.

Completed urban practices include:

- The construction of the permeable pavement lots at the UNI Dome and Towers Residence Hall Parking lots. These practices combined have the capacity to treat 320,902 gallons of stormwater over a 24 hour period by disconnecting 9.47 acres of impervious surface.
- The permeable pavement project and bioretention cell at the Wesley Foundation was also completed. The landowner is now interested in additional infiltration and water quality projects.
- Three rain gardens totaling 151.7ft² were installed by local residents in the watershed.
- In addition, the ROTH bioretention cell, funded through an IJOBS grant, was completed. This practice is a 1,600ft² bioretention cell designed to treat a 30,492ft² drainage area of impervious surface which previously drained directly into Dry Run Creek.
- Four infiltration tree grate bioretention cells were also installed as part of the City of Cedar Falls Streetscape project.

GOAL: To reduce NPS impacts from on-site wastewater treatment systems

Improving private on-site wastewater systems is an essential step in improving water quality in Iowa. It is estimated that Iowa currently has up to 300,000 private septic systems and as many as one-third of those may be inadequate in terms of treatment effectiveness.

The Onsite Wastewater Training Center of Iowa operates at the Des Moines Area Community College and provides training to county sanitarians, onsite installers, engineers and others in the onsite wastewater industry. The Training Center is a member of the Consortium of Institutes for Decentralized Wastewater Treatment (CIDWT). The training center was developed with the assistance of a Section 319 grant for technical assistance and training. The center has been in operation since 2005 and has given 90 classes to more than 2700 participants since its inception. In 2012, eighteen classes were conducted in all parts of the state with topics pertinent to that area. The Training Center continues to provide quality education to sanitarians, septic systems designers and

installers to improve the quality of septic systems used in Iowa. The Training Center also provides training for certified time of transfer inspectors. Additional information can be found at www.wastewatertraining.com.

Iowa law includes a statewide requirement for time of sale septic system inspections. Every building with a septic system must have that system inspected prior to the transfer of the deed for that property. The time of sale is the most advantageous time to inspect and upgrade systems since money is already changing hands for the sale of the property. The inspection is primarily a method to discover the estimated 100,000 inadequate septic systems in Iowa. When an inadequate system is discovered during inspection it is required to be repaired or replaced. The inspections are conducted by a state certified inspector to ensure consistency and the results of these inspections are provided to the county environmental health offices for any required follow-up. Since the program began, an estimated 15,000 inspections have been conducted and 5,000 inadequate systems have been replaced with new code compliant systems.

In FFY2012, approximately 5,000 “time of transfer” septic inspections were conducted statewide, and an estimated 1,500 inadequate systems were replaced with new code compliant systems. Additional information can be found at; <http://www.iowadnr.gov/InsideDNR/RegulatoryWater/PrivateSepticSystems/TimeofTransfer.aspx> .

Iowa’s septic system regulations were updated in 2009 to include the previously mentioned time of sale inspection and to address improvements and innovations in the onsite industry. Iowa Administrative Code (IAC) 567 – Chapter 69, “Private Sewage Disposal Systems” now includes new technologies such as textile and peat filters to provide more options to properly treat wastewater on restrictive lots. Septic tank lids must be brought to the surface and effluent screens are now required to promote management of onsite systems. Many other changes were made to enhance system management and performance. Additional information can be found at: <http://www.legis.state.ia.us/aspx/ACODOCS/DOCS/567.69.pdf> .

The State Revolving Loan Fund (Onsite Wastewater Assistance Program) supports the replacement or upgrade of outdated private septic systems and has distributed more than 1,450 loans for a total of over \$11million. The program provides low interest loans for homeowners to update inadequate septic systems. In 2012, there were 151 loans issued for a total of \$1,391,586. Additional information about this program can be found at: http://www.iowasrf.com/program/other_water_quality_programs/onsite_waste_water_assistance_program.cfm

Several individual watershed projects address onsite wastewater treatment systems through various methods, including providing vouchers for septic tank pumping, providing educational workshops on septic systems, and by identifying unpermitted septic system discharges. More information about watershed projects that addressed onsite wastewater systems may found in the GRTS database.

Section 319-funded watershed projects that in FFY2012 included activities to address onsite wastewater treatment systems to improve water quality included:

- Silver Lake (Dickinson) Watershed Project
- Price Creek Watershed Project
- Union Grove Lake Watershed Project
- Clear Lake Enhancement and Restoration Project
- Iowa Great Lakes Project
- Price Creek
- Duck Creek
- Black Hawk Lake Watershed

GOAL: To protect waters of the State through installation and/or establishment of buffers and other riparian area improvements and through restoration and enhancement of wetlands

Past projects have specifically promoted the installation or establishment of buffers or wetlands. During the FFY2012, wetland and riparian buffers practices were promoted and implemented through several individual watershed projects. In FFY2012, the number of wetland acres installed through watershed projects included approximately 948 acres. These wetlands resulted in sediment load reductions of 44 tons per year, phosphorus load reductions of 70 lbs per year, and nitrogen load reductions of 2000 lbs per year. The number of buffers installed through watershed projects in FFY2012 included 11 buffer strips. These resulted in sediment load reductions of 484 tons per year, phosphorus load reductions of 629 lbs per year, and nitrogen load reductions of 1161 lbs per year. More information may be found in the GRTS database.

Individual watershed projects which promoted the installation of buffers and/or wetlands in FFY2012 included:

- Clear Lake Enhancement and Restoration Project
- Rathbun Lake Special Project
- Clear Creek Water Quality Project
- Union Grove Lake Nonpoint Source Watershed Project
- Prairie Rose Lake Water Quality Project
- Dry Run Creek
- Water Quality in Rathbun Lake: BMPs for Targeted Sub-Watersheds 2008
- Tete Des Morts Watershed Project
- Silver Lake (Dickinson)
- Big Creek Lake
- Wetland Restoration Mini Grants
- Lyons Creek
- Black Hawk Lake
- Price Creek
- Lake Hendricks Watershed Project

- Duck Creek
- Yellow River Headwaters

Conservation Reserve Program

Overview

The Conservation Reserve Program (CRP) is a voluntary program for agricultural landowners. Through CRP, you can receive annual rental payments and cost-share assistance to establish long-term, resource conserving covers on eligible farmland. The Commodity Credit Corporation (CCC) makes annual rental payments based on the agriculture rental value of the land, and it provides cost-share assistance for up to 50 percent of the participant's costs in establishing approved conservation practices. Participants enroll in CRP contracts for 10 to 15 years.

Benefits

CRP protects millions of acres of American topsoil from erosion and is designed to safeguard the Nation's natural resources. By reducing water runoff and sedimentation, CRP protects groundwater and helps improve the condition of lakes, rivers, ponds, and streams. Acreage enrolled in the CRP is planted to resource-conserving vegetative covers, making the program a major contributor to increased wildlife populations in many parts of the country.

FFY2012 Activity:

- A decline in CRP acres continued during FFY 2012, with a net loss of 17,944 acres in CRP. The total enrollment in continuous and general CRP in 2012 was 1,644,429 acres. The largest increase in enrollment was Monroe County (+1065 acres) and the largest decrease was Ringgold county (-1884 acres).
- State Acres For wildlife Enhancement program (SAFE) was one of the few CRP programs which increased the enrollment during FFY12, with an increase of 3552 acres statewide. Upland and nesting programs remained steady during the year, while the Farmable Wetlands Program saw a net loss of 1450 acres.
- Conservation Reserve and Enhancement Program increase acres enrolled by 489 acres during FFY2012.

Iowa NRCS

FFY2012 Program Accomplishments

- Total EQIP Obligation was \$25.9 million dollars, treating 164,027 acres. At the end of FFY 2012, the EQIP program had a \$80 million backlog in applications. This includes \$1.242 million assigned to the National Water Quality Initiative (described on pages 13-14 of this report) in Iowa.

GOAL: To ensure 85% of the Iowa citizens are served by water systems with source water protection (SWP) programs and to achieve implementation of SWP plans for Public Water Supplies that will ensure 85% of the Iowa citizens are served by water systems protected by a SWP plan

The Iowa Department of Natural Resources (DNR) Source Water Protection (SWP) Program is a voluntary program and is divided into two separate programs in order to provide better customer service to our Iowa Community Water Supplies (CWS).

The SWP Program for Targeted CWS: Is housed in the Contaminated Sites Section of the Land Quality Bureau. The SWP Program for Targeted CWS works with communities who are in need of addressing an existing contaminant problem in their drinking water supply. The SWP Program for Targeted CWS conducts a groundwater (gw) site investigation to assist the SWP community planning team in planning and practice implementation in order to decrease the contaminant risk to the water supply. The gw site investigation is conducted by the Contaminated Sites section technical assistance staff who work with both point source and non-point source concerns. Rebecca Ohrtman, Coordinator for Targeted Community Water Supplies, 515-281-0932, Rebecca.Ohrtman@dnr.iowa.gov

The SWP Program for Non-targeted CWS: Is housed in the Iowa Geological and Water Survey. The SWP Program for Non-Targeted CWS provides initial Source Water Assessments for all CWS in Iowa. The Non-Targeted Program also works with communities that decide to proactively protect their drinking water source, either independently or with the assistance of a contractor. DNR Contact for Non-Targeted Community Water Supplies: Chad Fields, 319-335-2083 Chad.Fields@dnr.iowa.gov

The Iowa Source Water Protection (SWP) Program relies heavily on partnerships within the department as well as local, state, federal, and non-profit entities to maintain success. These partnerships range from gathering and sharing data to leveraging outside funds and technical assistance for best management practices, to promotion and education of source water protection within other existing programs. Both SWP programs have three different phases:

- 1) **The ‘Phase 1’ assessment.** Typically provided at no cost to the water supply by the state, these assessments detail the water system’s active wells, source water areas, susceptibility, and potential contaminants. A consumer confidence report is also included in the report. All community water systems in Iowa should have an accurate, updated assessment.
- 2) **The Source Water Plan.** If a community decides to protect its drinking water through SWP, it is encouraged to develop a SWP Plan. These plans detail action items to protecting its drinking water resource. As of 2012, the SWP Plan and efforts leading to the plan are often written by professionals and submitted to Iowa’s Source Water Advisory Group (SWAG) for approval. However, in the IDNR SWP for *Targeted CWS Program*, the community itself coordinates,

develops and submits the SWP Phase 2 Plan with assistance from the *Targeted CWS Program*. The community planning team utilizes the *Targeted CWS Program's* groundwater (gw) site investigation in the planning process. This process can aid to create local SWP ownership.

- 3) **Implementation.** In the SWP *Targeted CWS Program*, the community planning team secured resources for BMP implementation as part of the planning process. By including this step in the process it has enhanced the implementation of BMP's in the *Targeted CWS Program* projects.

The ***Targeted CWS Program*** has successfully partnered with several local, state and federal conservation partners. USDA-NRCS, USDA-FSA, Iowa Dept. of Ag and Land Stewardship (IDALS), Soil and Water Conservation Districts (SWCD), landowners, Resource Conservation and Development (RC&D) entities and Pheasants Forever (PF) among many other entities aided in supporting planning and implementation of *Targeted CWS* this year. These conservation partners continue to provide the *Targeted CWS Program* assistance in the local planning, conservation programs information/implementation, and funding for *Targeted CWS* to install SWP management practices. This assistance is a result of the intensive groundwater site investigation that identifies the contaminant source as point source or non-point source. Conservation partners can plan effectively if a source is known as point or non-point source. Through the gw site investigation process the conservation partners are assured their local, state, and federal funding resources are utilized to address the correct source of the problem and can plan accordingly.

Iowa Water System Data - as of 8/15/2012

	CWS	NTNC	TNC	Ground	
Surface					
Number of systems	1130	132	637	1757	142
Population (*1000)	3213	47.2	77.2	1612	1549

State Definition of Substantial Implementation

Updated Definition for State Fiscal Year 2013:

“The Iowa Department of Natural Resources and selected technical advisors review all public water supply submittals for Source Water Substantial Implementation in Iowa. Substantial Implementation is accomplished when a public water supply has implemented protective measures for the top potential contaminant sources it can reasonably implement within its source water area. In order to be considered eligible the public water supply must comply with all regulatory standards at the time.

Each public water supply considered Substantially Implemented will be examined once every three years through a state sanitary survey, or when a new monitored contaminant has been detected.”

Number/Population of Community Water Systems reported achieving Substantial Implementation (including pre-2013 definition):

Case Study – *Non-targeted systems:* DeSoto, Iowa, located along the South Raccoon River, the City uses shallow wells in the sand and gravel next to the river for its drinking water. For protecting their source water, in addition to locating and managing point sources, De Soto was able to enroll land into the CRP-WHP program.

SWP Targeted CWS Program's Success Story:

Remsen SWP Project included local coordination of a community planning team consisting of seven landowners, USDA-NRCS, Iowa Dept. of Agriculture and Land Stewardship (IDALS), Pheasants Forever (PF), city officials, Municipal Utility staff, and the IDNR. The local SWP Team coordinated with IDNR Targeted SWP Program to conduct a ground water site investigation conducted by the Contaminated Sites Section of IDNR. The nitrate source was identified as localized non-point source (NPS). The 9-step planning process was utilized by the local SWP Team. Resources and funding for BMP implementation were received from USDA-NRCS, IDALS-DSC, landowners, city utilities, Iowa Watershed Improvement Review Board, State Revolving Fund, and Plymouth County Pheasants Forever Chapter. As of January 2013, the nitrate levels in the Remsen municipal well have declined since 2007 from 27 mg/L to 12 mg/L (48%), due to this SWP implementation pilot project.

Additional SWP Targeted CWS Program Pilot Projects experiencing initial SWP implementation success through partnerships include:

Manchester Targeted Project: *funds received from* USDA of 3.5 Million in MRBI funds for BMP implementation for 'FFY 2013 through 'FFY 2016.

Elliott Targeted Project: *funds received from* IDALS grant, Griswold School land donation, Griswold FFA Chapter, Landowners, Elliott citizens, County Conservation Board, County Supervisors, IDNR REAP funds, Golden Hills RC&D, County Pheasants Forever chapters, USDA-NRCS & USDA-FSA programs, US Fish & Wildlife Service, National Parks Service, among many other funding sources. In addition, for local SWP education an outdoor classroom is also in plan development. Implementation is planned for FFY '2013 thru FFY '2016 for the many BMPs in this project.

Dunlap Targeted Project: local landowners, school system and city utilities currently working to decrease nitrate application in priority area (as indicated in SWP Plan). SWP initiated in 2011. The SWP implementation appears to be resulting in nitrate levels beginning to decline in city wells.

Sioux Center Targeted Project: Continues to implement BMPs (cover crops, NM, rotations) on 400 acre priority area. Dordt College and the landowners continue nitrate reduction research at this site for SWP purposes.

Battle Creek Targeted Project: Addressing a known (verified through DNR Contaminated Sites section) point source through collaborative work with the responsible party and the CWS. Addressing a known point source was instrumental in this pilot project.

For additional DNR SWP program information go to the Targeted CWS website: <http://www.iowadnr.gov/Environment/WaterQuality/SourcewaterProtection.aspx>
Non-Targeted CWS website: www.iowasourcewater.org

Agriculture Drainage Well Update

Agricultural Drainage Wells (ADWs) were installed by farmers from the early to mid-1900's to drain agricultural lands to improve their farmability. ADWs were placed in locations where bedrock was shallow and where the distance to a gravity outlet was considered at the time to be too costly. ADWs provide a direct conduit to groundwater and are therefore a potential source of pollution and contaminants. The 1987 Iowa Groundwater Protection Act required that every ADW in the state be registered with the DNR and that research and demonstrations be performed by IDALS. The research began in 1989 at the ISU research farm outside Gilmore City by Iowa State University in conjunction with IDALS to investigate both closing the wells and continued use of the wells. The research determined that if the well head is protected and all the surface intakes connected to tile flowing into ADWs are removed that the potential for pollution or contamination into the groundwater is greatly reduced. Engineering studies were also completed to provide a rough cost-estimate to close and provide alternative drainage for all the reported ADWs in Iowa with a summary report completed in 1999.

A total of two-hundred and ninety-six (296) ADWs were registered with DNR. Some of these wells were closed by the applicants right away using IDALS cost-share money, some were determined to be non-functioning, and some were determined to be natural sinks. A total of 186 continued use permits were issued by the DNR in 1999 and 2000 for a length of 10-years. The permits required that three conditions be met: (1) the well-head had to be protected, (2) all connected surface intakes had to be removed, and (3) the disconnection of any septic systems tied to drainage tile that discharged into ADWs. Permits were recently renewed by the IDNR for another 10 years for wells that have not been closed.

Legislation passed in 1997 for FY98 provided the first appropriated money to cost-share closing ADWs and provide alternative drainage. The first project was completed in Pocahontas County in the area of the research farm. A total of 37 ADWs were closed with a cost-share amount of \$1.5 million. IDALS has received appropriations for ADW closure almost every year since. Since its inception, this program has used \$10.09 million as cost share to close one-hundred thirty-four (134) ADWs and provide alternative drainage. A small portion of the funding was used to pay for research completed by Iowa State University to look at other alternatives to closure where shallow limestone is present. The remaining money has been obligated to two projects that plan to close an additional nineteen (19) ADWs.

This voluntary program provides cost share money of up to seventy-five percent (75%) of eligible costs. Applications were sought by IDALS a number of times through mailing out information and application forms to every owner and user of ADWs as provided on the IDNR permits. Priority has been and continues to be closure of ADWs that pose the

most significant risk to the environment and then based upon cost-effectiveness (i.e. the cost per well). Project selections have been made using the criteria above accounting for all the unfunded applications received and the amount of money available.

Current Status of ADWs

As of the end of FFY2012, a total of sixty-five (65) known wells remain to be closed. A summary of the status each of the wells remaining to be closed is provided below.

10 ADWs in Pocahontas County started construction for closure in 2012. In addition, 9 ADWs in Humboldt County started construction for closure in 2012.

A more detailed engineering report is nearly complete for 12 ADWs in Humboldt County. The estimated cost-share need for this project is currently at \$1.5 million. At this time, no additional cost-share money is available to commit to this project. This project could be ready for construction in 2013 if cost share money was available.

The remaining 34 ADWs have no known plans for closure or detailed engineering work being completed at this time. The estimated cost share need to close 18 of the remaining ADWs around \$6 million, but could be more depending upon final designs and wetland mitigation requirements.. The other ADWs are located in areas with shallow limestone or sinkholes. If the solution to these ADWs is closure and alternative drainage over other management practices, the environmental benefit would be reduced because the surface water would still have a direct conduit into the groundwater through sinkholes. The study completed by Iowa State University in 2010 investigated alternative management practices other than providing tile drainage for the closed ADWs to allow for row cropping as the current land use. The results of this study need further development.

APPENDIX A

Successful watershed project completed in 2012

Lake Hendricks Watershed Project

Watershed Characteristics

Lake Hendricks is a 54-acre man-made lake that is designated as “Class A1” Primary Contact Recreational Use water body and is located on the west edge of Howard County in Northeast Iowa, less than one mile north of Riceville in the Iowan Erosion Surface landform region (Appendix A, p. 19). The lake was built in 1960 with the assistance of the United States Department of Agriculture’s (USDA) Natural Resources Conservation Service (NRCS) and is the central attraction to the adjoining 234-acre park. The Lake Hendricks Watershed (HUC# 070801020102) consists of 1,209 acres of gently to moderately sloping land. Approximately 84% of these acres are currently in agricultural use with 67% being row crop and 17% grass/hay. Timber is the next largest land cover category at 11% followed by the lake itself at 4% and remaining miscellaneous cover at <1%. The dominant soils are Clyde (22%), Floyd (16%), and Bassett (12%), and the soil loss values due to sheet and rill erosion range from 0.5 tons/acre/year to above 5.0 tons/acre/year (Appendix A; p. 20).

Lake Hendricks Park is managed by the Howard County Conservation Board (HCCB) and the primary designated use is public recreation. Lake Hendricks Park was renovated in August 2006 to include 55 designated campsites in the lower campground, with each site having its own electricity and water hookups, gravel pad, picnic table and fire ring. The camping revenue totaled over \$41,000 during the HCCB’s 2006 FY, averaging 3,160 camper days or approximately 10,000 campers. This figure does not account for the heavy day-to-day usage the park sustains by visiting or non-camping units. Along with the upper campground, two shelters, two shower/bath facilities, and two playgrounds, Lake Hendricks Park offers swimming, fishing, hiking, nature study/photography, baseball/softball, a butterfly garden, volleyball, biking, and an enclosed deer pen. The Wapsi-Great Western Trail is a 14 mile recreational trail in which the lower three mile portion extends through Lake Hendricks Park. In 2005, Iowa State University’s (ISU) Iowa Lake Valuation Project of Iowa estimated the total number of household trips to Lake Hendricks to be 21,149.

Water Resource Problems

In the early 1990’s, local park officials began noticing an increase in the amount of in-lake vegetation and algae. The problem was exceedingly bad in 1995 in which the overgrown vegetation began to die off as temperatures decreased and the decaying vegetation depleted the dissolved oxygen (DO) levels in the lake to below minimum standards and a fish kill occurred. Shortly after, the IDNR assisted the HCCB and installed an aeration system to increase DO during the winter months. In 2002, Lake Hendricks was officially listed on the 303(d) Impaired Waters list for low DO, and in 2004 and 2006 the algae impairment was added. However, since the artificial aeration system was installed the DO levels are no longer considered a water quality problem.

Currently, Lake Hendricks is on the proposed 2010 303(d) list for primary contact recreation pH and algae, and aquatic life pH impairments (IDNR 2002-2006, 2010). The assessments completed by ISU's Limnology Department have identified the current water quality impairments of pH and algae are due to high levels of chlorophyll *a* and suspended algae in the water, moderately poor water transparency, and very high levels of phosphorus in the water column.

In 2007, local sponsors partnered with the Howard Soil and Water Conservation District (SWCD) and the IDNR-Geological and Water Survey Bureau to conduct additional water monitoring and geographic information systems (GIS) watershed assessment as part of an IDALS-DSC Project Development and Planning Assistance Grant in order to determine the source of the water quality impairments. A total of 11 sites were initially selected which consisted of sampling 11 cropland drainage tile outlets. A 12th site was later established on the no-name tributary entering the north end of the lake (Appendix E; p. 50). Monitoring took place on a bi-weekly basis and the parameters that were chosen for monitoring are water temperature, pH, dissolved oxygen (DO), chloride, total suspended solids (TSS), *E. coli*, total kjeldahl nitrogen, nitrate + nitrite-N, ammonia-N, and total phosphorus-P. Monitoring results showed elevated levels of nitrate + nitrite-N from all 11 cropland drainage tile outlets likely due to the leaching of N from ammonia and manure applications to the surrounding crop fields. Elevated phosphorus levels were also detected in both the dissolved state and solid state attached to sediment.

A GIS assessment and maps were also completed for the Lake Hendricks Watershed to assist with determining the source of the water quality impairments. The resulting sheet and rill erosion estimates showed that the average soil loss in the watershed due to sheet and rill erosion is less than 1 ton/acre/year, and the resulting sediment delivery for the entire watershed is 139 tons/year, which is quite low for a watershed surrounded by agricultural production. Qualified NRCS technical and local field office staff evaluated the surrounding county owned timbered areas for gully erosion. Based upon their input, IDALS-DSC staff used the Sediment Delivery Calculator (SDC) to estimate sediment loading contributions from gully erosion to be 600 tons/year. Of the 600 tons/year, 71% of the loading comes from gullies located in the timber on the south and east sides of Lake Hendricks (Appendix A; p. 20). As a result of the watershed assessment and monitoring efforts the nonpoint sources of pollution were identified as nutrient loading from the surrounding cropland drainage tiles and sediment loading from active gully and streambank erosion adjacent to the lake.

Project Description

In the spring of 2008 the Howard SWCD, local NRCS staff, HCCB employees, Northeast Iowa Resource Conservation and Development staff, and IDNR Fisheries Department personnel met to discuss the importance of addressing the nonpoint source pollution impairments in the Lake Hendricks Watershed and to create a project plan that would identify the needed goals and strategies. All parties agreed that Lake Hendricks is an invaluable part of the local economy and that the water quality of the lake must be

improved to support the viability of the local economy and to protect the overall health of lake users.

As a result, the Howard SWCD submitted a grant application for funding to the state of Iowa's Water Protection Fund (WPF) and Watershed Protection Fund (WSPF) which is administered through IDALS-DSC. A WMP was also developed and submitted for funding to the Environmental Protection Agency's (EPA) Section 319 Non-Point Source Pollution Program which is administered by the IDNR Water Quality Resource staff. The LHWP was awarded a total of \$251,000 by both the EPA's Section 319 Program and IDALS-DSC. The Howard SWCD was designated as the lead project administrator.

Project Objectives

The WMP that was developed for the LHWP proposed four project objectives and created a strategy for putting the objectives into action. The four main objectives and strategies are as follows:

Objective 1: Reduce nutrient concentrations in Lake Hendricks by 35%.

Nutrients are being delivered directly to Lake Hendricks from 11 separate cropland drainage tile outlets as well as the main 900 acre surface water drainage-way entering the north side of the lake. Nutrient loading will be addressed by promoting high residue tillage systems and nutrient management plans on the upland agricultural acres, and by installing nutrient trapping Best Management Practices (BMPs) to intercept the tile and drainage outlets. The upland practices to be implemented include 50 acres of no-till systems, 75 acres of nutrient management plans, 30 acres of cover crops, and five acres of grassed waterways.

The structural BMPs that will be installed adjacent to Lake Hendricks include one sheet-pile wetland structure, two bioreactors, two sediment basins, and one grade stabilization structure. These BMPs will intercept all of the surface and drainage water from these direct water sources and will filter out at least 35% of the nutrient concentrations. In order to measure nutrient reductions, additional water sampling sites will be established at the outlets of each one of the fore mentioned BMPs and the nutrient load in the treated water exiting the BMPs will be compared with the nutrient load of the untreated water sources.

Objective 2: Reduce sediment loading from near-lake sources by 70%.

According to the GIS watershed assessment the overall sediment load being delivered to Lake Hendricks from upland agricultural sources is very small. The majority of the sediment entering the lake is the result of numerous gullies and moderately severe streambank erosion which contributes an estimated 640 tons of the total 781 tons of sediment to the lake each year. In addition to the BMPs being installed to mitigate the nutrient loading, an additional two sediment basins, 700 feet of streambank stabilization, and 31 acres of TSI will be implemented to reduce the overall sediment loading of Lake

Hendricks by 70%. The SDC program will be used to measure the estimated sediment loading reductions.

Objective 3: Increase the sense of local ownership of Lake Hendricks.

Local citizens, park users, anglers, and campers value Lake Hendricks as a significant economic and recreational resource. Lake Hendricks has an effect on both property values and tourism dollars in the community of Riceville and in both Howard and Mitchell Counties. Unfortunately, the poor water quality and the resulting growth of excess algae in the lake are limiting these positive impacts. Along with the Howard SWCD and partnering agencies, improving the water quality of Lake Hendricks will require the effort of local officials, community members, and agricultural producers within the watershed. In order to keep these entities involved with the Project, various information & educational activities, signs, press releases, and informational kiosks will be implemented.

Objective 4: Establish a Local Advisory Committee for the long-term protection of the lake.

A Lake Hendricks Advisory Committee (LHAC) will be created that will meet at least once annually to give advice and support to the LHWP. Members of the HCCB will be the main constituents along with the additional participating stakeholders. The LHAC will also collectively identify emerging water quality problems and actively seek opportunities to work together using local resources to mitigate future threats to the water quality of the lake.

Pre-Project Loading Estimates

Table 1. Pre-project sediment loading reduction estimates

Sediment Source	Total Sediment Loading
Upland rill & sheet erosion	141 ton/year
Gully erosion near the lake	600 ton/year
Streambank erosion near lake	40 ton/year
Total	781 ton/year

Table 2. List of BMP's, project application goals, and associated cost share rates

BMP Type	Original Project Goals	Cost-Share Rates
Upland Treatment:		
No-till Farming	50 Ac	\$75/ac
Nutrient Management Plan	75 Ac	\$18/ac
Cover Crop	30 Ac	\$10/ac
Grassed Waterway	5 Ac	\$1,500/ac
Near Lake Critical Areas:		

Bioreactor	1 No	75%
Sediment Basin	4 No	75%
Grade Stab. Structure	2 No	75%
Wetland	1 No	75%
Streambank Stabilization	500 Ft	75%
TSI	50 Ac	75%

Project Results

Project Accomplishments

During the LHWP a total of one sheet-pile wetland structure, one grade stabilization structure, five sediment basins, two denitrifying bioreactors, 700 feet of streambank stabilization, 30.7 acres of timber stand improvement, and 39.4 acres of CRP were completed.

Table 3. Installed BMPs and associated funding

BMP	Units	Cost Share Amount	Source	Date Completed
TSI (Tree Planting & Crop Tree Release)	24.5 Ac	\$1,377.00	WSPF	6/2/2009
Bioreactor #1	1 No	\$3,093.71	WSPF	11/14/2009
		\$2,500.00	Other	
Grade Stabilization	1 No	\$22,500.00	WSPF	12/7/2009
Sediment Basin #1	1 No	\$6,000	WSPF	12/23/2009
Streambank Stabilization	500 Ft	\$11,250.00	WSPF	12/23/2009
CRP CP-38	16.4 Ac	\$26,810.00	CRP	3/25/2010
CRP CP-33	23 Ac	\$43,630.00	CRP	5/7/2010
Bioreactor #2	1 No	\$3,824.67	WSPF	9/1/2010
Sediment Basin #2	1 No	\$12,000.00	WSPF	9/1/2010
Streambank Stabilization	200 Ft	\$5,012.47	WSPF	2/7/2011
TSI (Clear Cut)	6.2 Ac	\$2,812.00	WSPF	2/7/2011
Wetland	1 No	\$84,466.12	319	12/29/2011
Sediment Basin #3, #4, #5	1 No	\$19,925.70	319	12/29/2011
Totals		\$245,201.67		

Table 4. List of BMP's, project application goals, and associated cost share rates

BMP Type	Original Project Goals	Actual Project Accomplishments	Percent Complete
Upland Treatment:			
No-till Farming	50 Ac	0 Ac	0%

Nutrient Management Plan	75 Ac	0 Ac	0%
Cover Crop	30 Ac	0 Ac	0%
Grassed Waterway	5 Ac	0 Ac	0%
Near Lake Critical Areas:			
Bioreactor	1 No	2 No	100%
Sediment Basin	4 No	5 No	125%
Grade Stab. Structure	2 No	1 No	50%
Wetland	1 No	1 No	100%
Streambank Stabilization	500 Ft	700 Ft	140%
TSI	50 Ac	30.7 Ac	61%

Not all of the initial goals of the Project were accomplished. As described above, one emphasis of this Project was to implement BMPs in the upland portion of the watershed that would either reduce nutrient application rates or would keep more nutrients on the cropland areas. These BMPs included no-till farming, nutrient management plans, cover crops, and grassed waterways. However, as the Project began to progress the focus shifted from installing BMPs in the upland portion of the watershed to installing the BMPs around the lake that would intercept both surface and drainage source water and remove nutrients before the water ultimately entered Lake Hendricks. By focusing on installing the nutrient trapping BMPs around the lake and addressing all the major surface and subsurface water sources, it minimized the need for decreased nutrient leaching from the upland areas. All of the major incoming water sources will be treated with long-term permanent structural BMPs in lieu of implementing nutrient management BMPs that may change over time with the management priorities and goals of the cropland operators. As a result, none of the proposed BMPs for upland nutrient management were implemented.

Pollutant Reductions

According to the SDC the estimated overall sediment loading reduction as a result of this Project is 1,068 tons/year and the phosphorus loading reduction is 1,497 pounds/year. These reduction estimates are nearly twice as much as the original pre-project sediment loading estimate of 781 t/yr and phosphorus loading estimate of 2,096 lb/yr. The wetland, grade stabilization, sediment basins and streambank stabilization structures are working to greatly exceed the original sediment loading reduction goal of 70%.

Table 5. Post Project SDC Loading Reduction Estimates

BMP	Sediment Loading Reduction (ton/yr)	Phosphorus Loading Reduction (lb/yr)
FFY 2009		
TSI (Tree Planting & Crop Tree Release) 24.5 Ac	20	28
FFY 2010		
CRP CP-38	24	34

CRP CP-33	17	24
Denitrifying Bioreactor #1	NA	NA
Denitrifying Bioreactor #2	NA	NA
Grade Stabilization	250	350
Sediment Basin #1	50	70
Sediment Basin #2	40	56
Streambank Stabilization 500 Ft	40	56
FFY 2011		
Streambank Stabilization 200 Ft	13	18
TSI (Clear Cut)	4	6
FFY 2012		
Wetland	592	829
Sediment Basin #3, #4, #5	18	26
Totals	1,068	1,497

Supporting Agencies

The LHWP garnered the cooperation of various organizations including the Howard SWCD, IDNR, IDALS-DSC, HCCB, NRCS, Farm Service Agency (FSA), University of Iowa Hygienic Laboratory (UHL), ISU, Wisconsin Public Service (WPS), and the Riceville Community Club (RCC). Each organization's role is discussed in further detail below:

Howard SCWD: The Howard SWCD acted as the lead administrator for the LHWP. Howard SWCD personnel assisted with gathering pre-project assessment data and drafted the original grant proposal and WMP. Once the Project became approved and funded Howard SWCD personnel completed the following tasks: Contacted watershed landowners, conducted on-farm visits, assisted with BMP survey and designs, acted as liaison between contractors and landowners, lead educational meetings and field days, and completed all reporting requirements.

IDNR: The IDNR administered the Clean Water Act Section 319 funding and provided forestry, watershed assessment, and water monitoring assistance. IDNR 319 project staff assisted the Howard SWCD with getting the Project dollars allocated to specific BMPs. They also aided with project planning and reporting requirements.

The IDNR District Foresters provided all of the woodland management support for the implemented TSI practices. At the onset of the Project an IDNR forester completed a forest stand inventory on the HCCB property adjacent to the lake and created a Forest Stewardship Plan (FSP). The FSP made specific management recommendations based on the existing woodland habitat. The forester also inspected all completed TSI practices to certify they met all stewardship plan criteria.

IDNR GIS personnel completed the watershed assessment maps using the collected land-use data and GIS technology. The resulting assessments provided the sediment and nutrient loading estimates needed to establish project reduction goals.

The IDNR Water Monitoring staff created the yearly water monitoring plans and provided the equipment necessary for gathering water samples and data. They also worked with the University of Iowa Hygienic Laboratory to obtain water sampling bottles and coolers. The staff analyzed annual data and provided a detailed report highlighting the monitoring results.

IDALS-DSC: IDALS-DSC administered the WPF and WSPF dollars to the Howard SWCD for project assistance and BMP implementation. IDALS-DSC staff that worked directly with the LHWP personnel included the regional coordinator, field services bureau, and the Howard County secretary. The regional basin coordinator provided project advisory assistance, the field services bureau assisted with processing cost-share payments and load reduction reports, and the county secretary provided all project administrative assistance.

HCCB: The HCCB own and operate the land adjacent to the lake and provided the 25% monetary match to implement all of the installed BMP's aside from the CRP practices. The HCCB played an active role in addressing all water resource concerns on their property and contributed a total of \$42,292 for BMP implementation. The HCCB also worked to improve the maintenance trail that traverses on or near the installed BMPs. This trail and installed educational signs will provide an area for the public to view these BMPs and learn about their function.

NRCS: The NRCS provided all technical support for the implemented structural BMPs. NRCS personnel surveyed the potential BMP sites and completed the structural design plans. They also worked with the Howard SWCD staff and BMP contractors to make sure all practices were constructed in accordance with the designed specifications.

FSA: The FSA handled all contracting and payment duties associated with the CRP acres implemented as a part of this project.

UHL: UHL provided all of the necessary water monitoring collection equipment and tested the collected water samples for associated parameters. The lab also provided both hard-copy and electronic reports summarizing all testing results.

ISU: ISU staff assisted with the planning and design of both installed denitrifying bioreactors.

WPS: WPS owns and operates the Crane Creek Wind Farm which is partially located in the Lake Hendricks Watershed. WPS contributed \$2,500 towards the construction of Bioreactor #2 and attended community meetings to lend public support of the Project. WPS has also pledged to lend future financial support for information and education efforts at Lake Hendricks.

RCC: The RCC provided local community support for the LHWP. Club members distributed project information and scheduled opportunities for the Howard SWCD to provide project updates and information to local citizens.

Information and Education (I&E)

The LHWP completed a multifaceted I&E plan in order to promote the Project and educate the public about the water quality and conservation efforts. The I&E accomplishments for the Project included various annual meetings and displays, project promotion strategies, and educational tours and field days. All I&E activities are described in further detail below:

Annual Informational Meetings and Displays

Watershed project coordinator Annual Review meetings were completed during all three years of this Project. The goal of these meetings was to communicate all project accomplishments during the previous calendar year and present the goals planned for the remainder of the Project. Meeting attendees included staff supervisors, project partners, and local government officials.

Annual informational presentations were also scheduled and completed with the RCC. The meetings took place at the community center in Riceville, Iowa and involved local citizens and city officials. Information such as project accomplishments, future project plans, and conservation initiatives was presented. Meeting attendees were able to voice all questions and concerns.

A LHWP informational display booth was set up at the annual Mighty Howard County Fair, Pheasants Forever banquets, Wild Turkey Federation banquets, and the Conservation Districts of Iowa's (CDI) conservation education day that the Iowa State Capitol building. These display booths contained photos of completed project BMPs and project information. Personal contacts were made with the public and state legislators to promote the conservation efforts in the Lake Hendricks Watershed (Appendix C; p. 27).

Project Promotion

Various informational tools were used to promote the LHWP including informational kiosks, BMP signs, and baseball caps that contained the LHWP logo. Two informational kiosks were purchased as a part of the I&E portion of the Project and installed near the park entrance. The kiosks provided a central location for information flyers to be posted to promote the watershed project to park visitors (Appendix C; pp. 27-28).

An 18 by 24 inch informational sign was posted next each implemented structural BMP. These signs contain the NRCS technical description of each BMP to educate park visitors the purpose and function of each structure. The signs also contain the Project logo and

provide additional information regarding the BMP funding sources (Appendix C; pp. 28-30).

Promotional baseball caps were also purchased that contained the name “Lake Hendricks Watershed Project” along with a silhouetted fisherman in a boat. These caps were ordered in three colors: tan, green, and grey. The baseball caps were made available to the public at all promotional meetings and field day events (Appendix C; p. 31).

Conclusions

The LHWP accomplished three notable achievements during the three years the Project was in place. First and foremost, all four objectives were completed that were established at the onset of the Project. The implemented BMPs achieved both an estimated 55% nitrate reduction and an estimated 1,068 ton sediment loading reduction which exceeded the original Project objectives. Also, the LHAC was established to guide the Project and the local community’s sense of ownership of Lake Hendricks was bolstered due to the accomplishments and the promotion initiative. Second, all 11 untreated cropland drainage tile outlets directly draining into Lake Hendricks were addressed with BMPs. These installed BMPs will work to trap the tile drainage water and allow vegetation to use up a majority of the nutrients before the water ultimately enters Lake Hendricks. Third, all actively eroding gullies directly adjacent to the lake were eliminated with structural BMPs that will trap both the surface and sub-surface water runoff and filter out a majority of the nutrients and sediment.

The LHWP did encounter two main problems that were both associated the construction of the sheet-pile wetland structure. First, it was determined by a state agency that the cultural resource clearance process that accompanies all structural BMP implementations was not correctly followed in preparation for the construction of the grade stabilization structure. This assessment further complicated the cultural resource process and delayed the sheet-pile wetland construction by three months. Fortunately all personnel and agencies involved worked together efficiently to solve the issue and completed the cultural resource clearance to allow for the construction of the wetland before the Project deadline. Second, the thickness of the steel sheet-pile panels created difficult installation. The sheet-pile wetland structure design standard required sheet-piles to be 1/4 inch thickness. Unfortunately the length of the sheets exceeded the strength threshold for the 1/4 inch sheet thickness and along with several other factors such as soil properties, numerous sheets tended to bend during installation. This did not compromise the structure in any way but simply made it more difficult for the contractor to install the sheets. These findings will change the future sheet-pile design standard to either increase the sheet thickness for various lengths or will limit the length of 1/4 inch steel sheet-piles.

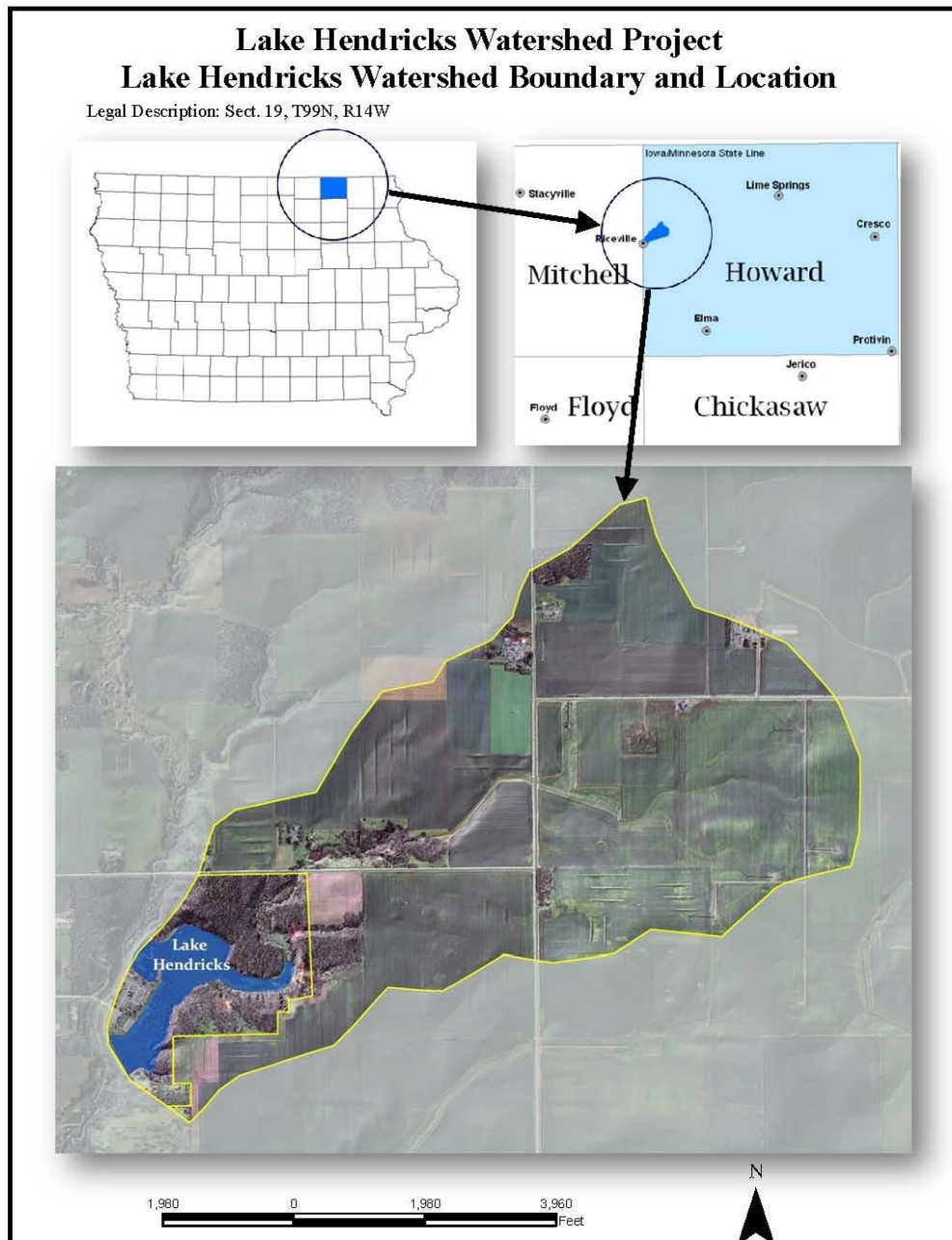
The LHWP included two unique aspects that will contribute to development and implementation of BMPs and future watershed projects. First, the LHWP included the installation of two denitrifying bioreactors. Bioreactors are a new type of BMP that are currently being studied intensively to find out the best uses, limitations, and nutrient

loading reduction potential. The information gathered from the installation of these two bioreactors along with the water quality monitoring data will contribute to the ongoing studies and development of bioreactors.

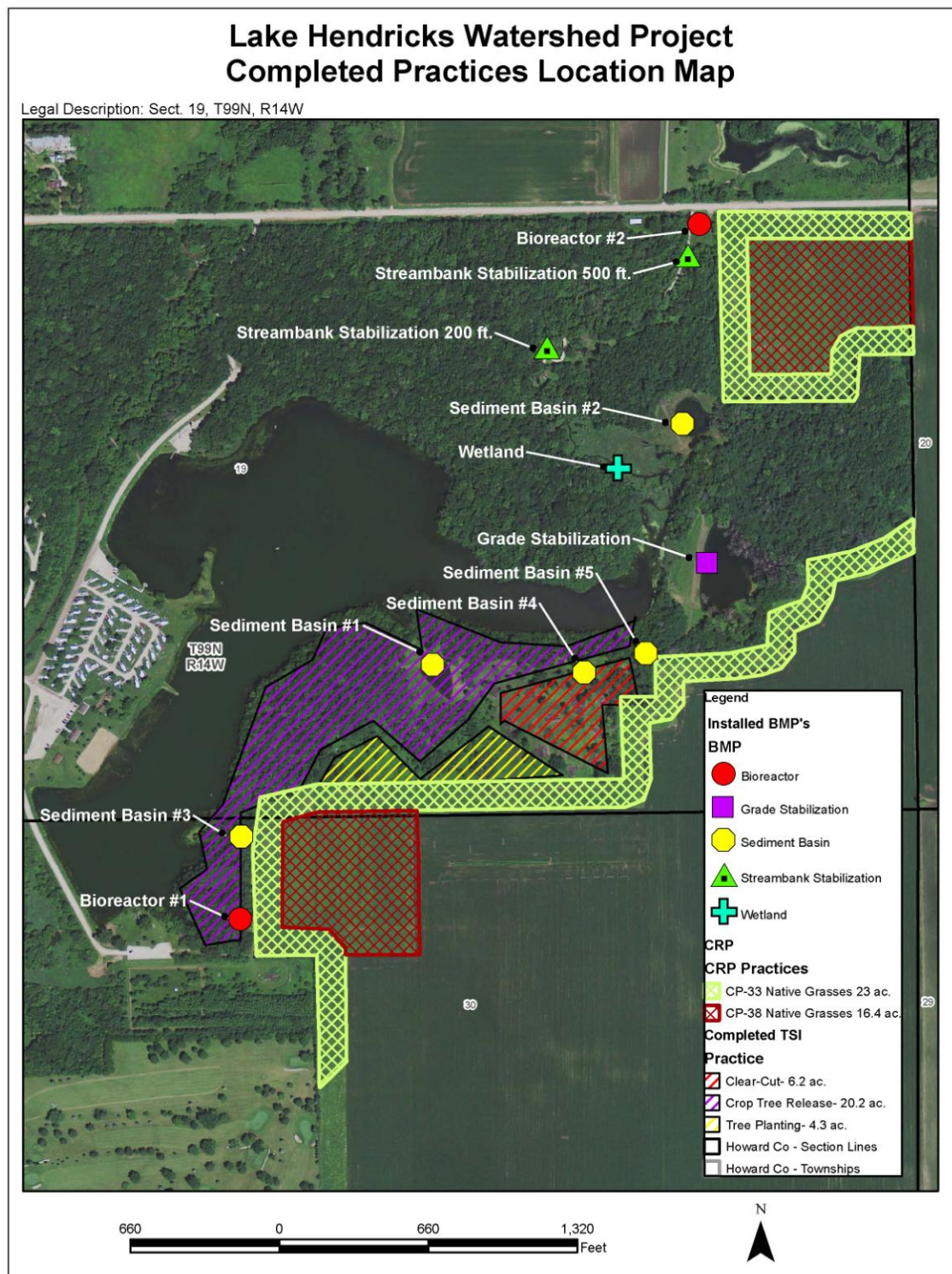
Second, the partnership that the LHWP had with the HCCB will serve as a model for future watershed projects and partners. A good working relationship was established between the Howard SWCD and the HCCB which led to the contribution of \$42,292 to install 14 BMPs on HCCB property. Without this key partnership, the LHWP would not have had ability to accomplish the Project objectives.

In addition to the water quality improvements already accomplished by the LHWP, three specific water protection efforts are planned for 2012. First, approximately 25 additional acres of TSI are scheduled to be completed along the northeast portion of the lake. The current vegetative cover of this area is identical to the acres that were clear-cut during the LHWP and is dominated by an understory of invasive common buckthorn. This area will also be clear-cut utilizing mechanical methods as a fecon mower and skid loader. By removing the invasive vegetation in this area, native ground cover will return and reduce sheet and rill erosion. The aesthetic nature of the area will also be improved. Second, additional education materials will be placed around Lake Hendricks to inform park users about the installed BMPs and water quality improvement accomplishments. Educational materials will include weather proof signs with illustrations and descriptions about specific structures or topics. Third, water quality monitoring will continue in order to quantify the nutrient and sediment loading reduction accomplishments of the installed BMPs. The water monitoring plan for 2012 will consist of a total of 10 sites that will include the grade stabilization structure, sediment basin #1, and bioreactor #2. In addition, the outlet of the completed sheet-pile wetland structure will be monitored.

Watershed Map:



BMP Location Map:



Grade Stabilization

Before:



After:



Sediment Basin #1

Before:



After:



CRP (CP-33 & CP-38 Native Grasses) 39.4 Ac

Before:



After:



Bioreactor #2

Before:



After:



Streambank Stabilization 200 Ft

Before:



After:



Wetland

Before:



After:



Sediment Basin #3

Before:



After:



Sediment Basin #4

Before:



After:



Sediment Basin #5

Before:



After:



APPENDIX B

LIST OF AGENCY COOPERATORS

State Lead Agency

Iowa Department of Natural Resources

Allen Bonini, Supervisor, Watershed Improvement Section, 515/281-5107

Stephen Hopkins, Nonpoint Source Coordinator, 515/281-6402

Other State Agencies

Iowa Department of Agriculture and Land Stewardship/Division of Soil Conservation

Jim Gillespie, Director, 515/281-6146

Federal Agencies

U. S. Environmental Protection Agency, Region 7
Karen Flournoy, 913/551-7782

U. S. Department of Agriculture, Natural Resources Conservation Service
Jay Mar, State Conservationist, 515/284-6655

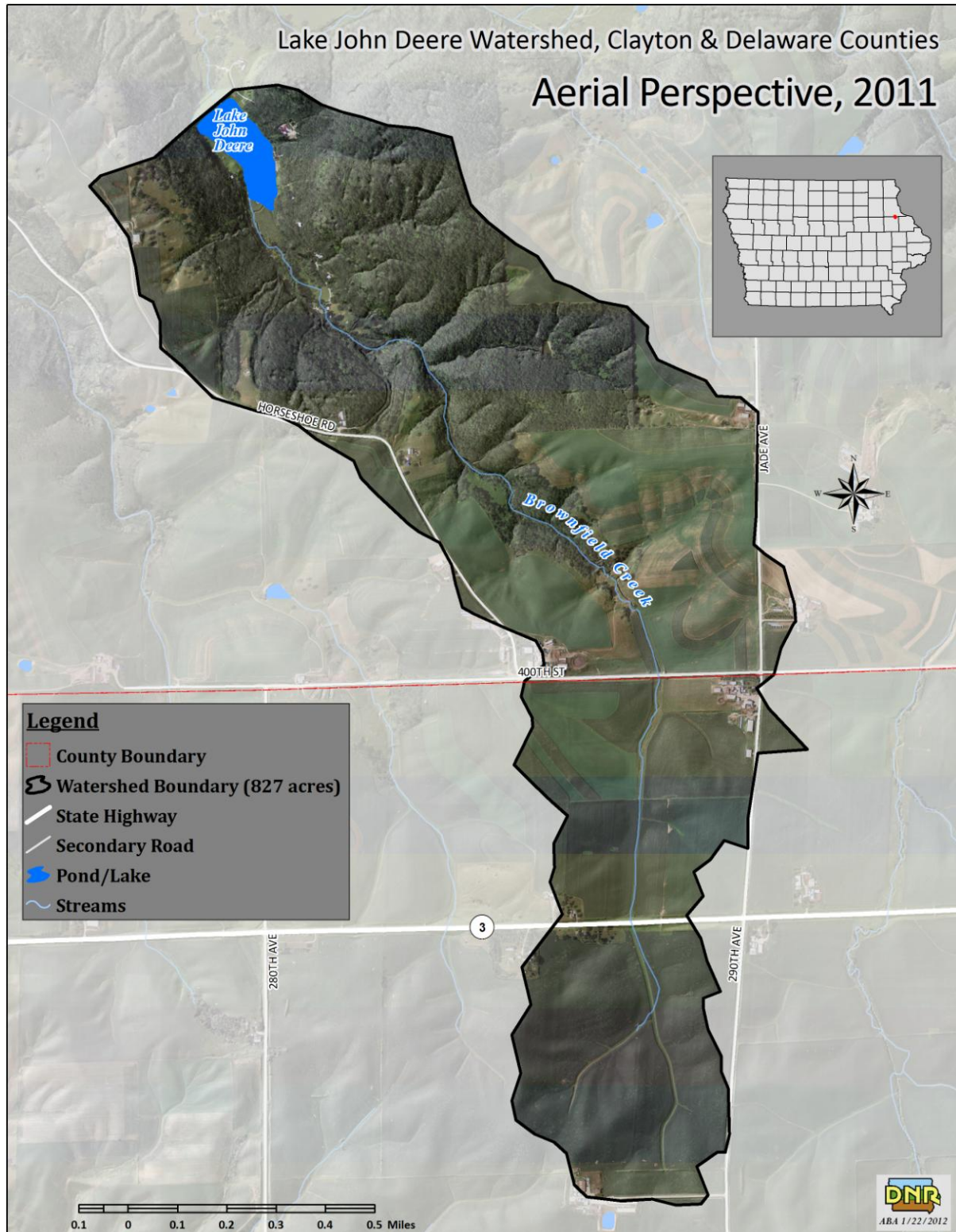
U. S. Department of Agriculture, Farm Services Agency
John Whitaker, State Executive Director, 515/254-1540

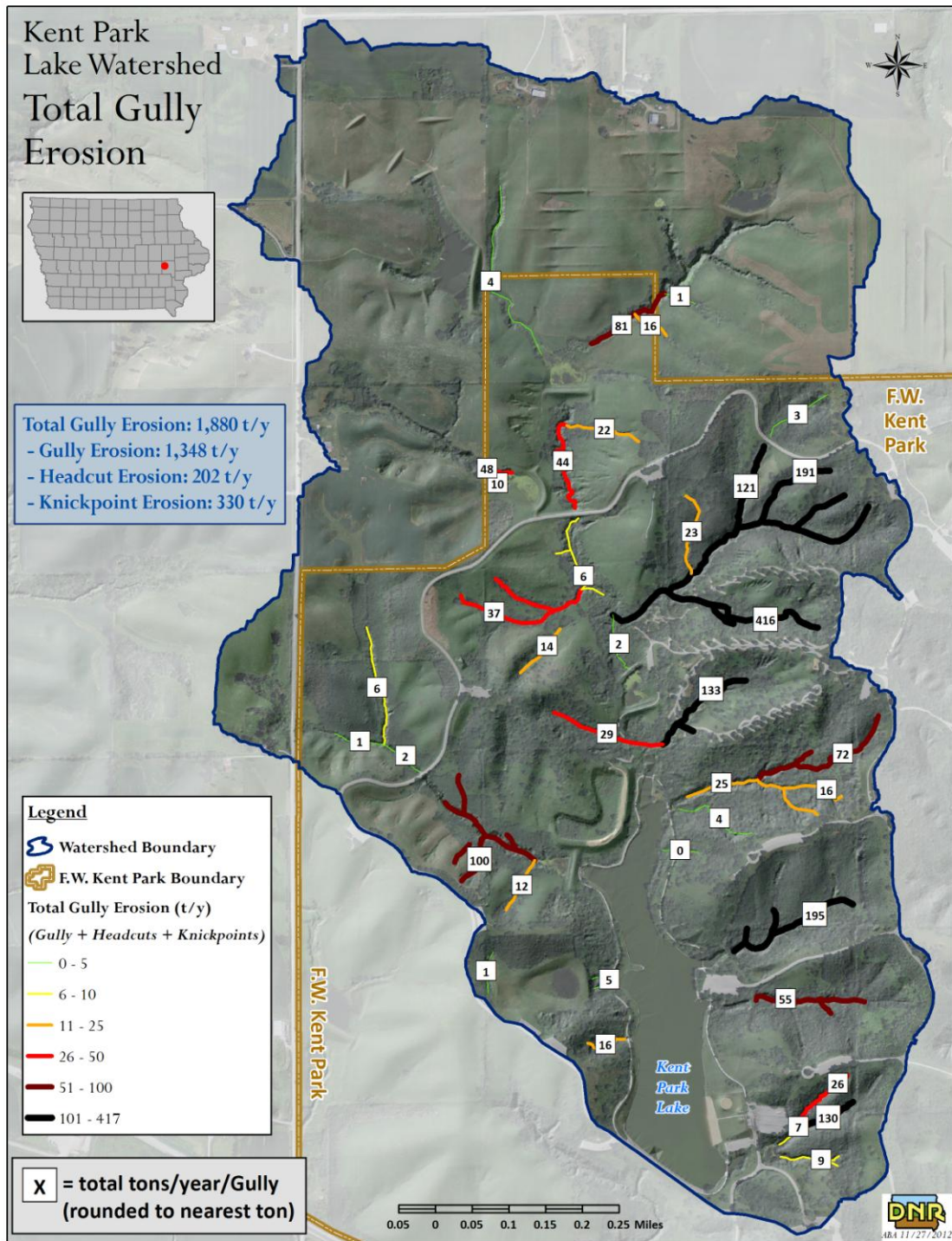
Local Agencies

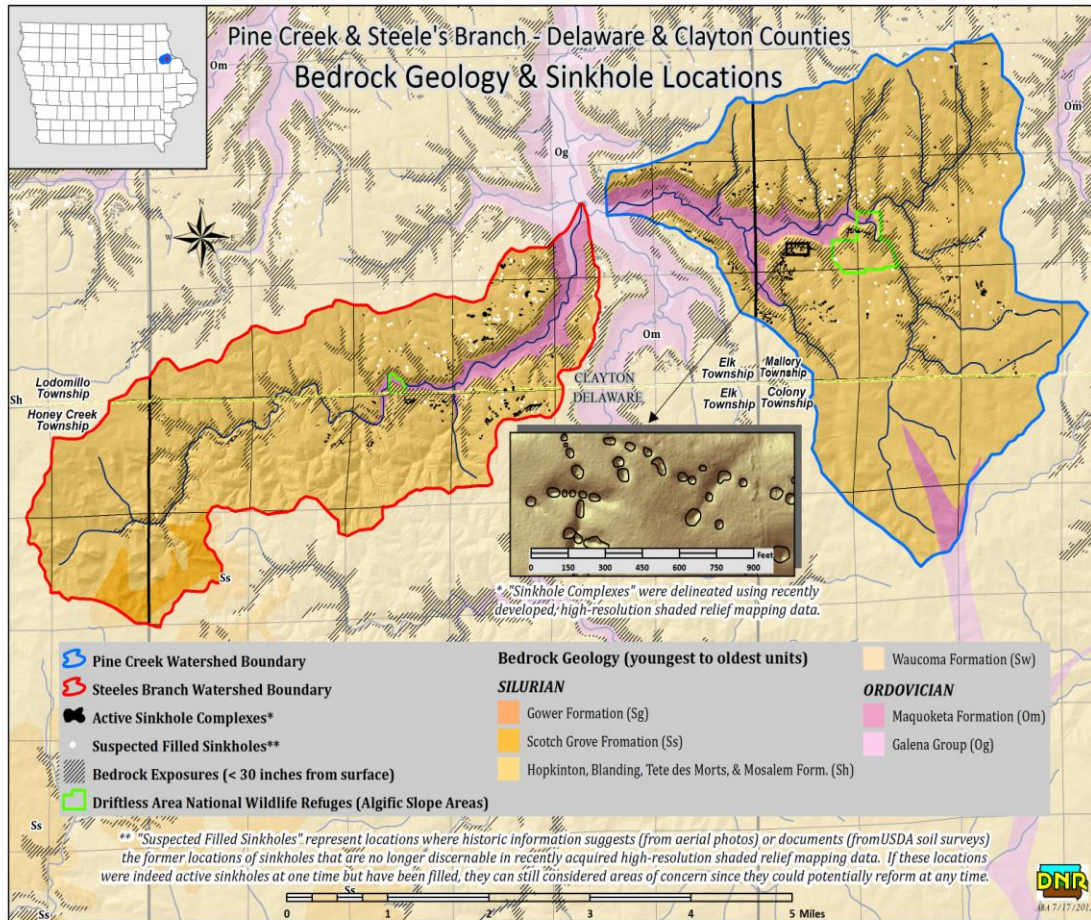
The individual project summaries, found on GRTS, identify local partners and other state and federal agencies which support each project.

APPENDIX C

EXAMPLE GIS ASSESSMENT MAPS:





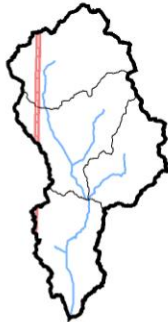


West Fork Middle Nodaway River Estimated Sheet & Rill Erosion, 2011

Total Sheet & Rill Erosion: 192,331 t/y
Average Sheet & Rill Erosion: 2.3 t/a/y
Watershed Size: 82,345 acres

Sheet & Rill Erosion for each Subwatershed

- 1) 63,744 t/y, Upper Subwatershed
- 2) 55,557 t/y, Middle Subwatershed
- 3) 35,954 t/y, Lower Subwatershed
- 4) 37,077 t/y, Rutt Branch Subwatershed

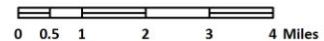


Legend

- County
- Section Boundary
- West Fork Middle Nodaway River Watershed
- Subwatershed Boundaries
- Ponds
- Streams
- RUSLE (t/a/y)**
 - 0.00 - 0.50
 - 0.51 - 1.00
 - 1.01 - 2.00
 - 2.01 - 5.00
 - 5.01 - 36.42



Erosion estimates are based on the NRCS Revised Universal Soil Loss Equation (RUSLE). Land cover, management, and tillage information was collected by local watershed project personnel via a 2011 windshield survey of the watershed.



APPENDIX D: STATE MATCH, LEVERAGED & OTHER FUNDS



Iowa's FFY2012 Section 319 state match is provided through funding from a portion of the following state sources: the Water Protection Fund (WPF), the Watershed Protection Fund (WSPF), and Publicly Owned Lakes Fund, all administered by the Iowa Department of Agriculture and Land Stewardship Division of Soil Conservation, plus funding from a portion of the Iowa DNR Lakes Restoration Program. Additional funding leveraged with Section 319 funding to implement watershed improvement plans includes funding from the above sources, plus funding provided through the state Watershed Improvement Review Board (WIRB), the State Revolving Fund (SRF), and federal conservation programs administered through the Natural Resources Conservation Service (NRCS), and Farm Services Agency (FSA), plus private funding sources. Other funds that are used to implement nonpoint source BMPs in Iowa, but are not leveraged with Section 319 funds to implement watershed management plans, include funding from federal conservation programs administered through NRCS, FSA, plus funding from private sources. A brief description of nonpoint source funding programs is included below.

Water Protection Fund

The state Water Protection Fund (WPF) provides funding to county soil and water conservation districts to carry out projects to protect surface and ground waters from point and nonpoint sources of pollution. Overall responsibility for administration of the Water Protection Fund program and funds is assigned to the Division of Soil Conservation, Iowa Department of Agriculture and Land Stewardship (DSC). Water Protection Funds currently are provided through the state Resources Enhancement and Protection (REAP) Program.

The DSC has worked closely with the Department of Natural Resources and with other state and federal resource agencies in selecting projects to be funded, with many projects receiving funding from both the Water Protection Fund and from other programs, such as EPA's Section 319 Program. Since 1992, DSC and DNR have jointly solicited proposals for both the Water Protection Projects and the Section 319 Nonpoint Pollution Control programs, and have utilized a common procedure for review of those proposals.

A portion of the REAP soil and water enhancement funds are used for conducting Water Protection Projects, with 50% of the allocation being used for such projects. The remainder of the REAP soil and water allocation is used to support the Water Protection Practices Program being carried out by county soil and water conservation districts. One and one-half percent of the allocation is held in a reserve fund, and the balance is divided equally among the 100 SWCDs.

In SFY2012, the WPF allocated approximately \$1.3 million to the following projects:

- Bear Creek Watershed
- Big Bear Creek Watershed

- Burr Oak/Turtle Creek Water Quality
- Clear Lake Enhancement and Restoration
- Competine Creek Partnership
- Competine Creek Watershed
- Deer Creek and North Branch Sub Sheds of Clear Creek
- East Fork Grand River Watershed
- Elk Creek Watershed
- Four Mile Creek Watershed
- Fox River Water Quality
- Jordan Creek Watershed
- Lake Hendricks Watershed
- North Thompson River Water Quality
- Onion Creek Watershed Protection
- Rathbun Lake
- Silver Creek Watershed
- Urban Conservationist
- Upper Whitebreast Creek Water Quality
- West Tarkio Watershed
- Yellow River Headwaters Watershed

Iowa Watershed Protection Fund

The Iowa Watershed Protection Fund (WSPF) is administered by the Iowa Department of Agriculture and Land Stewardship, Division of Soil Conservation, (DSC). The WSPF was established to accelerate watershed protection efforts in the state. The authorization for these funds is broader than for the Water Protection Fund (WPF) or Section 319 funding. Primary goals include building the capacity of a growing number of local communities to sponsor watershed protection efforts, and providing resources to leverage other funding available at the federal and local level.

This program is supported through an appropriation from the state legislature to develop and encourage integrated approaches to meet multi-objective water quality protection, flood control, erosion control, recreation, wildlife habitat and other resource protection issues. It provides funding for watershed solutions to water quality and water management problems that impact local communities, the state, and the country.

A portion of this funding directly supports watershed protection project implementation. In addition to funding project implementation, WSPF provides matching funds with the Iowa DNR to support the SWCDs in the development of projects and project applications. Using funding of the Development Grants, sponsors are provided additional resources to investigate and assess a potential project and to complete the necessary paperwork to submit an application.

In SFY2012, the WSPF allocated approximately \$3.6 million to the following projects:

- Big Bear Creek Watershed
- Big Creek Watershed
- Black Hawk Lake Watershed
- Buckeye Creek Water Quality
- Burr Oak/Turtle Creek Water Quality
- Camp Creek Watershed
- Clear Lake Enhancement and Restoration
- Coldwater/Pine Watershed Protection
- Competine Creek Partnership
- Competine Creek Watershed
- Deer Creek and North Branch Sub Sheds of Clear Creek
- Dry Run Creek Water Protection
- East Fork Grand River Watershed
- East Fork of Grand Watershed
- Elk Creek Watershed
- Four Mile Creek Watershed
- Fox River Water Quality
- Green Valley Watershed
- Iowa Great Lakes Watershed
- Kettle Creek Watershed
- Lake Geode Watershed Project
- Lake Wapello Nonpoint Source Watershed
- Littlefield Lake NPS Watershed
- Muchakinock Creek Watershed
- North Thompson River Water Quality
- Nutting Creek Watershed
- Onion Creek Watershed Protection
- Prairie Rose Lake Water Quality
- Price Creek Water Quality
- Rathbun Lake
- Silver Creek Watershed
- Silver Lake Water Quality
- Tete Des Morts Creek Watershed
- Union Grove Lake
- Upper Catfish Creek Watershed Protection
- Upper Whitebreast Creek Water Quality
- Walnut Creek Watershed
- Watershed Development Grants
- West Tarkio Watershed
- Yellow River Headwaters Watershed

Publicly Owned Lakes Program

The state Publicly Owned Lakes Program (POLP) is a component of the Iowa Financial Incentives Program, which provides financial assistance to owners and operators of farmland for installation and use of soil and water conservation practices. The POLP is used to cost share up to 75% of the approved cost of permanent soil conservation practices installed in watersheds of selected publicly owned lakes and reservoirs. POLP funding is administered by the Division of Soil Conservation, Iowa Department of Agriculture and Land Stewardship (DSC).

The publicly owned lakes or reservoirs eligible for POLP funds are identified on a priority list established annually by the DNR, using the following criteria:

- Any constructed or natural lake having a watershed acreage to lake surface area ratio of less than 80 to 1 and is owned by an Iowa state, county or municipal government.
- A map of the watershed identifying the sources of significant sediment delivery to the lake.
- Documentation of the existence of a watershed plan that targets significant sources of sediment delivery to the lake.

POLP funds may only be used to cost share permanent soil conservation practices. Eligible practices include: critical area planting, diversions and terraces, grade stabilization structures, grassed waterways, and water and sediment control basins. Practice installation is subject to the same general administrative requirements as apply to the state's voluntary cost share program, including entering into a long-term maintenance agreement with the SWCD.

In recent years, Iowa has utilized POLP program funds in combination with funding from other programs in a number of lake watershed projects, including funds from EPA's Section 319 programs.

In SFY2012, the POLP was allocated approximately \$332,500 and the following lake watersheds were selected:

- Big Creek Lake, Polk and Boone Counties
- Black Hawk Lake, Sac and Carroll Counties
- Lake Binder, Adams County
- Lake Geode, Des Moines and Henry Counties
- Lake Icaria, Adams County
- Little River Lake, Decatur County
- Prairie Rose Lake, Shelby County
- Twelve Mile Lake, Union and Adair Counties
- West Lake, Clarke County

- Williamson Pond, Lucas County

DNR Lake Restoration Program

The DNR Lake Restoration Program, administered through the DNR Fisheries Bureau, provides funding to complete diagnostic and feasibility (DF) studies for planning lake restoration activities on priority lakes. The DF studies are conducted by the Iowa State University Department of Ecology, Evolution, and Organismal Biology, by private consultants, or by private nonprofit organizations. A component of the studies includes nutrient data both in the watershed and in-lake.

DF studies are currently underway for the following lakes:

- Lake Delhi
- Blue Lake
- Hickory Grove Lake
- Deer Creek Lake
- Easter Lake

The following lakes, which are currently undergoing lakes restoration activities funded by the DNR Lakes Restoration Program:

- Lake Icaria (Wetland Restoration)
- Storm Lake(Dredging, Lake Restoration)
- Clear Lake (Watershed Improvement)
- Twin Ponds (Watershed Improvement)
- Lake Wapello (Watershed Improvement)
- Little River Lake (In-lake Restoration, Watershed Improvement)
- Iowa Great Lakes (Watershed Protection)
- Central Park Lake (Watershed Improvement)
- Hawthorn Lake (Watershed Improvement)
- Five Island Lake (Dredging)
- Lost Island Lake (Fish Barrier, Water Control Structures)
- Lizard Lake (Spillway Repair, Fish Renovation)
- Carter Lake (Engineering, Lake Restoration)
- Lake Manawa (Water Level Management)
- Black Hawk Lake (Watershed Improvement)
- Lost Grove Lake (Road Risers)
- Prairie Rose Lake (Watershed Improvement, Lake Restoration)
- Green Valley Lake (Sediment Removal)
- Lake Darling (Dam Construction, Lake Restoration)

Lake Restoration Program (LRP) Highlighted Projects

Blackhawk Lake (Sac County)

Blackhawk Lake is the southern most natural lake in Iowa located in Sac County, Iowa, near the town of Lake View. This 922-acre lake has a watershed of 14,097 acres. Data

from the Iowa Department of Natural Resources indicate that the lake currently has an average depth of 5.15 feet. Water clarity is predominantly in the range of 0.5 – 1.5 feet, with phosphorus levels consistently 100-200 ppb. Very poor lake transparency due to turbidity and frequent algae blooms due to high phosphorus levels are common in the past few years. In addition, the state beach portion of the lake on the 30 Acres Campground shore was closed once in 2004 and 2007, both due to high E. coli.

- Local leadership in cooperation with the IDNR and ISU Extension formed a local steering committee (Watershed Action Group). This group includes members of the community and watershed, as well as members from various state and local agencies (e.g. ISU Extension, ISU Agronomist, Sac SWCD, Carroll NRCS, Sac Board of Supervisors, watershed residents/landowners/farmers, Iowa IDNR, City of Lake View, Sac NRCS, City of Breda City Clerk, and Carroll SWCD). This committee locally raised \$40,000 to help fund the Diagnostic / Feasibility Study; the goal of the study was to provide restoration alternatives to the IDNR and local community; IDNR contracted with Iowa State University (ISU) for the D/F study, which they completed in fall of 2010.
- IDALS provided planning assistance to help accurately identify existing problems and issues critical to achieve desired resource management objectives and to help local leaders inventory, assess, and develop strategies to address watershed problems.
- The watershed action group has met a few times to discuss the project, reviewed restoration alternatives and developed a plan of action. IDNR provided funding to the SWCD to take information gathered in the Watershed Assessment, Diagnostic Study and Water Quality Improvement to development of a Watershed Management Plan. This allowed the local group the ability to apply for project implementation dollars for work in the watershed. The SWCD received funding through a DNR 319 Watershed Improvement Implementation Grant. The grant will go to funding a watershed coordinator for the Black Hawk Lake Project and for implementation of BMPs.
- As part of the Black Hawk Lake Watershed Plan, the DNR Fisheries and Wildlife staff have designed and implemented a fish barrier system for State Marsh and the culvert connecting Black Hawk Lake and Inlet Bay.
- Through personal contact with the NRCS, they have reported that select landowners have already pledged to install 52 acres of CRP and 15,000 to 25,000 feet of terraces in hot spots within the watershed and to-date have implemented practices on 2,600 acres of the 13, 156 acre watershed to reduce sediment loading by 310 tons annually and reduce phosphorus loading by 775 pounds annually. The \$483,587 cost was partially funded by \$287,603 from the National Water Quality Initiative. Through the National Water Quality Initiative (NWQI), NRCS is offering financial and technical assistance to farmers interested in improving water quality and aquatic habitats in priority watersheds

with impaired streams. NRCS will help producers implement conservation and management practices through a systems approach to control and trap nutrient and manure runoff. Qualified producers will receive assistance for installing conservation practices such as cover crops, filter strips and terraces.

- The City of Lake View received the “2011 Outstanding Tourism Community of the Year.” Although this has little to do with the Black Hawk Lake Restoration Project, it emphasizes the popularity of the lake and the high potential for an economic return on the IDNR’s investment in the resource. The City of Lake View has a population around 1,150 and competed with larger cities, such as Altoona and Mason City, for this award.
- The Iowa Learning farm produced a video (approx. 40 minutes) about watersheds and water quality. Black Hawk Lake and the restoration project were the focus of this video.
- Due to the extreme drought of 2012, much of the shoreline around Black Hawk Lake was exposed. The City of Lake View organized a lakeshore clean up and attendance was around 50 to 60 individuals. Several dump truck loads were taken to the landfill. The Lake Restoration Program paid for the cost of dumping at the landfill.

The DNR held a public meeting August 2012 in Lake View, IA to discuss the plans to renovate the fishery in Black Hawk Lake. The major focus of the lake restoration project has been targeted at improving the watershed. However, the internal recycling of nutrients and re-suspension of sediments via rough fish activity still contribute significantly to the water quality issues in Black Hawk Lake. Taking advantage of historically low water levels the DNR implemented a fishery renovation to eradicate rough fish species, help improve water quality, and reclaim the lake so that a quality sport fishery can be established.

- Promiscuous fishing (suspension of fishing limits) was opened up after the public meeting. Commercial harvesters came in, and over the course of about 5 weeks, removed around 130,000 pounds of fish. During this time, we conducted fish salvage. Most of the fish went to Black Hawk Pits, which was renovated early, to provide some local recreational fishing while Black Hawk Lake is turning around over the next couple of years. Some fish were also taken to Arrowhead Lake. These fish were mostly largemouth bass and channel catfish. All fish that were transported were sorted before they went into the distribution tank on Black Hawk Lake, and then sorted again before they were stocked into Black Hawk Pits and Arrowhead Lake to make sure that no undesirable species were moved.
- The chemical renovation of Black Hawk Lake was carried out November 2012. 3,720 gallons (124 barrels) of rotenone were applied in less than 4 hours on the day of the application. Upon examining the shoreline the following days, just

about all of the dead the fish that washed to shore were gizzard shad, common carp, bigmouth buffalo, bullhead, and channel catfish. Aside from the channel catfish, there were very few sportfish.

- The week after the renovation, we conducted fish pick-up. It took a day and a half to complete the clean up. DNR Fisheries estimated that somewhere between 120,000 to 140,000 pounds of fish were picked up. The vast majority of the shoreline was covered by workers pitch forking fish into UTVs, which dumped the fish into a tractor bucket, and the fish were then loaded into a dump truck and dump trailer. Unusually warm weather and high winds caused thousands of pounds of fish to surface and wash ashore after the initial fish pick up and another effort to pick up fish was made on December 5th. It is estimated that another 100,000 pounds of fish were picked up.

Black Hawk Renovation “by the numbers”:

Total Volume Treated: 2,913 acre-feet

Total Gallons Rotenone Applied 3,884

Pounds of Fish Removed by Commercial Anglers: 130,000

Pounds of Fish Removed by Fisheries Clean-up: 220,000

Pounds of Fish Removed by Fish Salvage: 4,000

Total Pounds of Fish Tissue Removed from Black Hawk Lake (estimated): 354,000

Estimated Pounds of Phosphorus Removed via Fish Removal: 8,071

Estimated Pounds of Nitrogen Removed via Fish Removal: 37,170

Outlet/Spillway Repair/Fish Barrier

The upper portion and lip of the outlet structure was damaged by ice heave during the winter of 2011/2012. Low water levels caused ice to form below the crest of the outlet and ice expansion and heave pushed up on the structure and popped the old repair off. Mid-States builders completed the recent repair with materials better suited to withstand the elements. The elevation of the outlet remains the same as before and the top of the structure was built wide enough so that a fish barrier can be installed.

The Black Hawk Lake Protection Association has applied for and received a grant to fund a new fish barrier on the Black Hawk Lake outlet. The Black Hawk LPA will be paying for the construction and installation of the fish barrier through their funds and money from a grant they applied for (Sac County Endowment Fund). The cost of the barrier will be around \$20,000.

Cottonwood Point Armoring

Cottonwood Point is a significant natural feature on Black Hawk Lake and is now only a few feet wide in some areas due to erosion. Shoreline armoring is planned to protect this area. Some local landowners have offered rock from their fields for the project and the Black Hawk LPA wants to spend money on this project as well.

The DNR Lakes Restoration 2011 annual report and 2012 plan are available online at:
<http://www.iowadnr.gov/Environment/WaterQuality/LakeRestoration.aspx>

Watershed Improvement Review Board (WIRB)

The Watershed Improvement Review Board (WIRB) was established in 2005 by the Iowa Legislature to provide grants to watershed and water quality projects. The Board is comprised of representatives from agriculture, drinking water and wastewater utilities, environmental organizations, agribusiness, the conservation community along with two state senators and two state representatives.

During FY2012 the Watershed Improvement review board allocated \$946,952 to the following water quality projects:

- Sands Timber
- Upper Otter Creek
- North Fork Maquoketa
- Dry Run Creek
- North Raccoon
- Waterloo Creek
- Central Park Lake
- Clear Lake
- Muchakinock Creek
- Rathbun Lake
- South Chequest Creek
- Competine Creek

<http://www.iowaagriculture.gov/IWIRB.asp>

State Revolving Fund

Iowa's Clean Water State Revolving Fund (SRF) has a diverse suite of programs and financing tools with which to address the state's water quality needs. Programs to mitigate or prevent nonpoint source pollution are targeted to farmers, livestock producers, homeowners, cities, and watershed organizations. During Federal Fiscal Year 2012, the following numbers of loans and loan amounts by program were committed:

Local Water Protection Program SRF Loans
\$5,420,161 – 227 Loans

Livestock Water Quality Facilities SRF Loans
\$7,387,591 – 32 Loans

Onsite Wastewater Assistance Program
\$1,391,586 – 151 Loans

Storm Water – Linked Deposits
\$189,874 – 3 Loans

General Non-Point – Participations-INHF
\$4,244,892 – 8 Loans

The Iowa SRF has the flexibility to respond with new initiatives as the need arises. With recent appropriations, loan forgiveness was added as a tool for accomplishing the state's goals. A portion of this additional subsidization has been targeted to green infrastructure projects, such as bioretention structures, stream daylighting, permeable paving, and low impact development practices. A total of \$16 million has been allocated for green projects, with approximately \$4.8 million designated for loan forgiveness.

During FFY 2012, Iowa began planning for a new source of water quality funding. The concept of "sponsored water resource restoration projects," (more details are found on page 32 of this report) funded through the deferred interest on Clean Water SRF wastewater infrastructure loans, had been implemented in several other states. Iowa's municipal finance law prevented this option until the Iowa Legislature amended the Iowa Code to add a new category of projects that can be financed with sewer revenues. This new category includes locally directed, watershed-based projects to address water quality problems. On a typical CWSRF loan, the utility borrows principal and repays principal plus interest and fees. On a CWSRF loan with a sponsored project, the utility borrows for both the wastewater improvement project and the sponsored project. However, through an overall interest rate reduction, the utility's ratepayers do not pay any more than they would have for just the wastewater improvements. Instead, two water quality projects are completed for the cost of one. Iowa's SRF staff cooperated with 319 program staff and others to define eligibility and prepare program procedures and the program will be rolled out in FFY 2013 with a first year allocation of \$15 million.

The complete 2012 SRF annual report can be accessed at:
http://www.iowasrf.com/media/cms/ANNUAL_REPORT_B39A28AC23899.pdf